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BUSINESS BUILDING.

Business building is like character building in that we gain the goal of success by rendering SERVICE. We must give to our business more than we take out of it, and we must give to our patrons in one form or another more than we receive from them in the way of compensation.—Neversleep Gazette.

The Bell's Advertisement.

Newspapers in most of the large cities of the country recently have printed a big advertisement signed by the American Telephone & Telegraph Co., relating to the suits instituted against that company by the United States government and the inquiry being made by the Interstate Commerce Commission. The advertisement consists of a statement, to which President Theodore N. Vail affixed his name, outlining the Bell policy with regard to the government's campaign against the so-called wire monopoly. Much contained in the statement sounds very familiar. The old arguments are repeated in favor of "universal service" and against competition. "Wherever possible," also reads the advertisement, "our plans have been disclosed to the public in advance, and what has been done in carrying them out, has been along ordinary business lines with the implied, and generally with the expressed, approval, authorization or consent of the municipal and state authorities directly interested."

This, doubtless, will be surprising news to these same authorities, for, so far as letting the public know in advance what it was going to do, the Bell has been about as communicative as a deaf and dumb man with both hands cut off. Neither the Bell nor any other great public utility corporation has ever allowed any facts to leak out about its plans so long as they could be concealed. There is no criticism to be made on this point. It simply isn't good business to talk too much.

Further along, the Bell advertisement says: "We will willingly furnish the government any additional information which is in our possession or under our control, and will cordially co-operate with it in obtaining information as it may require. Every possible assistance will be given by us to the courts in their effort to determine whether our policy is or has been inimical to the public interest. We desire that anything wrong be corrected; we will voluntarily rectify any wrong that may be pointed out to us; and, so far as it may be determined that our policy or any act under it is against the public interest, we will promptly conform to such determination."

These are fair words, and—if carried out—betoken the millenium is not far distant. No trust, monopoly or corporation that Uncle Sam has ever gone after has done anything but scatter obstacles in his path. That's human nature. If the Bell really does these helpful things for the government, it will mark an epoch in trust prosecutions. It may be well to remember, however, that newspaper advertisements frequently exaggerate things.

Elbert Hubbard to Write for "Telephony."

From time to time various features have been added to TELEPHONY which, in the judgment of the editors, would increase the value of the paper to subscribers. When an opportunity presented itself to secure the services of Elbert Hubbard, who for many years has been a most conspicuous figure in the journalistic field, an arrangement was immediately made whereby a series of articles on trade journalism, which will be of interest both to readers and advertisers, will be presented, beginning with next week's issue. Fra Elbertus has a style of writing which is peculiarly his own and many of his pithy sayings have become world known.

The articles which will appear once a month, TELEPHONY believes will be another feature which will be of great benefit to readers. Mr. Hubbard will prove by example, show by experience, and illustrate by logic just what has been gained, and what is to be gained by reading and reflecting upon the many good things found in every issue of TELEPHONY.

You Can't Know Everything!

By HERBERT KAUFMAN

Of course you don't know everything. How can you? Why should you? You are not an ignoramus because you are ignorant of most subjects.

There are great men of whom you have never heard; great exploits of which you have never read; basic principles of which you haven't the faintest idea; and universal laws with which you have never come in contact. A thousand immortals have lived in vain so far as you are concerned.

There are kingdoms that you can't locate. If you were asked to call off the capitals of the world, you'd muff a dozen. The very nomenclature of chemistry, mathematics, physics, medicine, engineering, law, and diplomacy are meaningless sounds to your ears.

Revolutions transpire in crafts, sciences, and governments, and you are actually unconscious of the changes.

Every day you confess complete lack of information on topics which are commonplace to others.

It's dollars to crullers that you can't distinguish between differential calculus and glaucoma; that you aren't sure whether Cettinje is a town or a Russian dancer; or if the binomial theorem is a statue or a formula. But what of it? Neither can the rest of us.

If a mechanic is all at sea in a discussion of radio-activity, a chemist is just as likely to be out of his element in a rolling mill.

You aren't expected to be omniscient. In ten existences, you couldn't familiarize yourself with all the facts that all the people have gathered.

Don't be ashamed to acknowledge a human limitation. Your range of ideas is just as wide and the scope of your comprehension is as extensive as that of the average man who has had the same leisure and the same education.

But we do look to you to make good at your own game; to equip yourself with every possible detail that bears upon your immediate pursuit; to keep investigating, and searching, and pondering, and speculating upon every phase of your specialty.

You have time for that. It's an immediate obligation. A duty you owe to yourself and to us. We can only progress as a society in proportion to the progress of the individual.

No one can be erudite enough to answer all questions, but we must know where we can learn and from whom.

A community must be composed of many types. Its occupations must be diverse. And each of us must do that for which he is best equipped, intelligently and intently, to the limit of his powers.

As we gain in wisdom, we realize more and more the sanity and economy of division in labor—of close application to specific details. We behold in specialization, the shortest cut to mass efficiency. The standard of the many can only be raised by fitting each man to the task which he is most likely to do better than any other.

Thoroughness is the most vital of considerations. Every day we grow more distrustful of the "know-it-all."

You need feel no loss of self-respect when you find yourself unable to cope with another man's theme. But when the battle is carried into your own country—when you find that others know more than you about your own job, then it is time to blush as well as hush.

Copyright by Herbert Kaufman

The Telephone as an Auxiliary to Fire Alarm Telegraph

Cincinnati Municipal System—Description of Alarm Equipment in Central Fire Tower and Operation of Street Alarm Boxes—Uses Made of Telephone by Officials—Telephone Used to Report 75 per Cent. of All Fire Alarms

By J. E. Peavey

The public safety department of a municipal government is responsible for the protection and safety of the citizens and their property. One of the most important organizations for effective results, in fulfilling these obligations, is a well organized municipal fire department.

The highly important function of a fire department has been recognized and appreciated for ages, and no branch of a civic government is of more importance, or brings more thrills of pride to a citizen, than the recognized efficiency in the local fire department. It is a fact, that it is hard to find an organization, either civic or otherwise, that is more devoted to duty and labors harder for efficiency, than the fire fighting organization of a large city. The history of fires in every city proves this.

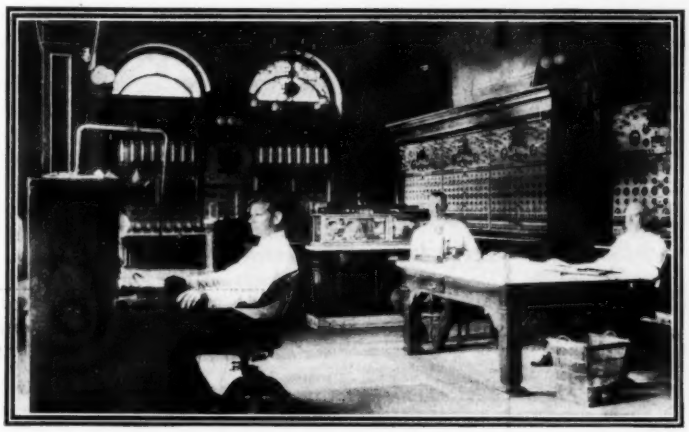


Fig. 1. The Operating Room or Central Fire Tower, Cincinnati, Ohio.

An efficient fire department has, as a highly important and indispensable part of its organization and equipment, a fire alarm telegraph system. In fact the efficiency of the department, in a large measure depends upon the efficiency of the alarm, or telegraph system used. Hence the latest and best modern devices for signaling and communicating, are adopted and applied to this service.

The telephone lost no time in finding its place, and proving its value in this particular service; in fact the telephone has so materially increased the facilities for reporting and fighting fires, that its value to the service is inestimable, and its service indispensable.

The use of the telephone as an auxiliary to the fire alarm telegraph is a feature that interests the telephone man, and, with a view of furnishing a little general information on the subject, the writer presents a brief discription of the system used in Cincinnati, Ohio. This particular system is one of the most complete and up to date in this country and it furnishes a good exposition of the present day function of the telephone when used in connection with this extremely responsible and important work.

The extent of the application of the telephone as an auxiliary to the fire alarm telegraph system, is largely a local matter and varies more or less with local conditions. However the writer will endeavor to show the latest, modern practice, and possibly furnish material for thought on the part of those interested, relating to the further application of this utility to this important service.

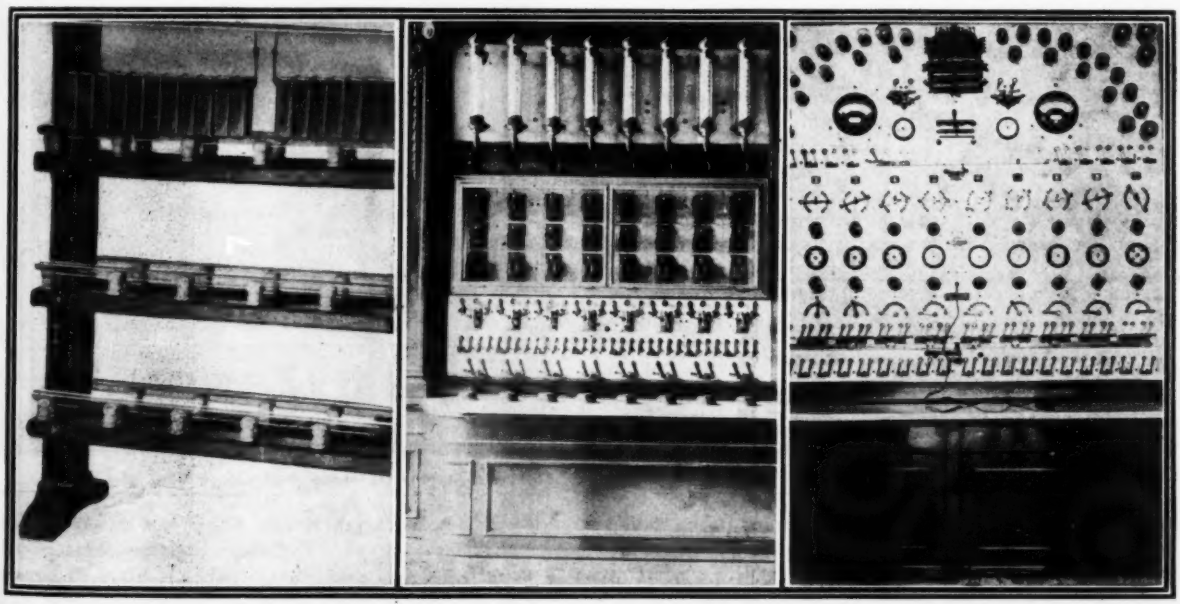


Fig. 2. Mounting of Storage Battery—Fig. 3. Alarm and Joker Circuit Line Panel—Fig. 4. Charging and Discharging Battery Panel.

To enable a better appreciation of the function of the telephone when used in connection with a telegraph alarm system, a general description of the telegraph system will first be given.

The fire alarm telegraph is 62 years old and first saw

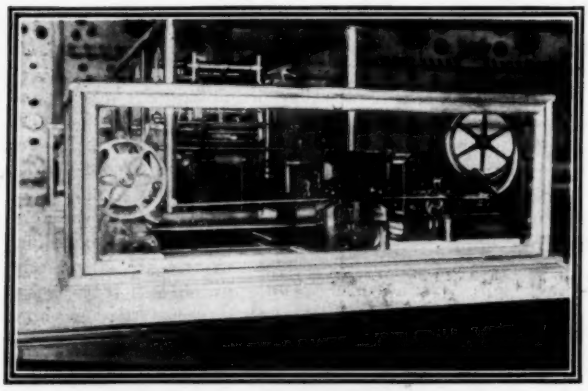


Fig. 5. Register for Recording Alarm.

the light of experience in Boston, Mass., in the year 1851. Therefore the alarm telegraph is 25 years the senior of the telephone.

The fire alarm telegraph used in Cincinnati is known as the Gamewell system. It is a central energy system throughout, the current for all of the circuits being supplied from storage batteries located in the central office, or colloquially speaking fire tower.

To enable an understanding of the system and its operation, we may broadly divide it into four parts, namely: street alarm circuits and equipment; joker circuits and equipment; gong ringing circuits and equipment and battery circuits with equipment. All four of the divisions are connected with and under the control of, the central fire tower.

Each of the four divisions specified will be further subdivided, so that a better understanding of their particular functions and method of operation may be had.

The street circuits and equipment are the primary elements of the system, as they connect the street alarm boxes with the central fire tower and originate the alarm.

The street alarm is a series circuit, covering a section of the city, or a number of city blocks. A city may be divided into as many sections as desired, and each division given its individual circuit. This is a matter that is generally controlled by local conditions; but care should be exercised not to have a single circuit cover too large a territory, for severe storms or other abnormal conditions may arise to temporarily put the circuit out of working order, thus leaving a large district unprotected for a short interval until repairs may be made. Therefore in all cases, a careful study of the district with its possible hazards should be made, to be sure that an efficient circuit assignment is developed which will give a maximum protection.

The Cincinnati system contains 30 street alarm circuits, with an average of 23 street signal boxes per circuit. The length of circuit, and number of boxes per circuit, as previously stated, is purely a local matter that varies with the local hazard.

The street alarm circuit contains the street alarm boxes; alarm signaling apparatus in each of the local fire engine houses in the particular district through which the circuit passes; and central fire tower alarm apparatus for receiving, relaying, timing, and registering the alarm.

The term, "joker circuit" as applied to a certain class of circuits used in the fire alarm system is a misnomer. The so-called joker circuits are a group of highly important secondary circuits that connect the central fire tower with the local fire engine houses throughout the city, but are not electrically connected with the street alarm circuits.

The joker circuits are for the use of the central fire tower telegraph operator, to telegraph alarms to all of the engine companies throughout the city. There are ten circuits used for this purpose, and each circuit contains a telegraph key, line relay and sounder, and the necessary switches for grouping, or connecting, all of the circuits at the central fire tower. In the circuit at the engine houses, are tapper bells and paper tape recording apparatus for signaling the men on duty, and for leaving a permanent record of the signal.

The gong ringing circuits are a second set of circuits with means for transmitting an alarm from the central fire tower to all engine companies in the city. There are also ten of these circuits and each is equipped with the necessary gong ringing and switching keys at the central fire tower, and a large signal gong at the engine houses.

Battery circuits and equipment are all located at the central fire tower. These consist of 1765 B. T. type Chloride accumulators, with elaborate charging and discharging panels, equipped with all of the necessary switches, circuit breakers, ammeters, voltmeters and other accessories for convenience in handling, and reliability in operation.

The batteries are in duplicate. While one group is in

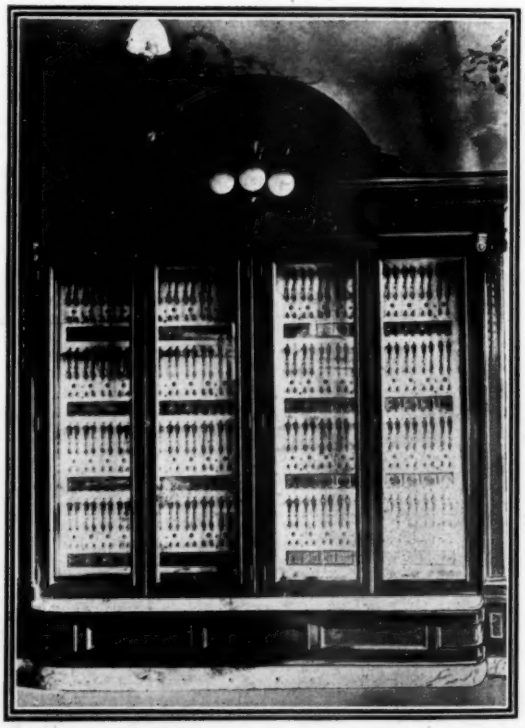


Fig. 6. Line Protector Board.

service furnishing current to the alarm circuits, the other group is being charged. The batteries are charged with 0.75 ampere and there are three separate sources of power provided for the purpose, namely; The city building isolated lighting plant; the city commercial lighting mains;

and the street power feeders. With these precautional provisions, power to operate the entire system is assured at all times.

In Fig. 1 is shown a general view of the central fire tower operating room. On the extreme right of the room are the battery power panels. At the far end of the room may be seen the joker and gong ringing switchboards. On the left of the room, but not shown in the illustration, is located the street alarm circuit switchboard. This switchboard with its equipment, is identical in appearance with the joker board shown at the end of room, except there are four instead of two line panels.

The type and the method of mounting the storage batteries are seen in Fig. 2. The glass battery cells are grooved at the bottom and ride in the groove upon the edge of a glass girder, which in turn is supported by specially provided porcelain insulators. The combination is mounted upon a neat wooden frame, so spaced and located that each cell may be conveniently observed and inspected from time to time during the daily routine work of maintaining the plant. This arrangement of batteries gives the most workmanlike, artistic, and high insulation of circuits known to the art, as well as reliability and efficiency in the source of power.

In Fig. 4 is shown the details of one of the combination charging and discharging panels. There are six of these panels. At the extreme top of the panel may be seen the circuit breaker and bank of lamp resistances. Beneath the circuit breaker and lamp resistances are located the charging switches, voltmeter, and ammeter. The lower section of the panel is covered with the various current supply switches for the lines.

The manner in which the line panels are assembled and equipped is shown in Fig. 3. Located at the top of the panel are eight vertical glass cylinders, representing eight lines. The cylinder contains a paper designation strip which shows all of the street box numbers on the respective line.

Pendant from the vertical cylinder is a small red electric lamp and immediately beneath the lamp in the face of the switchboard, is a small circular opening where the line circuit number appears when an alarm is turned into the central switchboard. This combination of designation tube, red lamp, and orifice for line number in the face

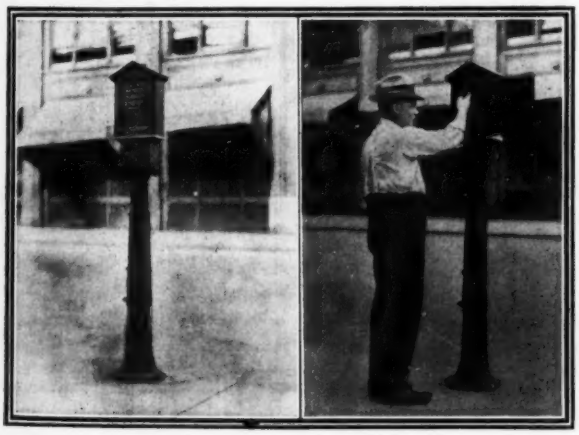


Fig. 7. Standard Street Box and Citizen Using It.

of switchboard, forms the central office annunciator system for the circuit. It should be understood that each circuit has an individual, or identification, number that bears the same relation to the street box number, that the letter, or calls, on a party line telephone do to the telephone line number, except there are no duplicate alarm box numbers, as is the case with the telephone party line calls. As an example: Box 730 may be on or changed to any of the circuits at pleasure, but it still retains the number, 730. The annunciator system just described, shows the circuit number, while the vertical glass tube

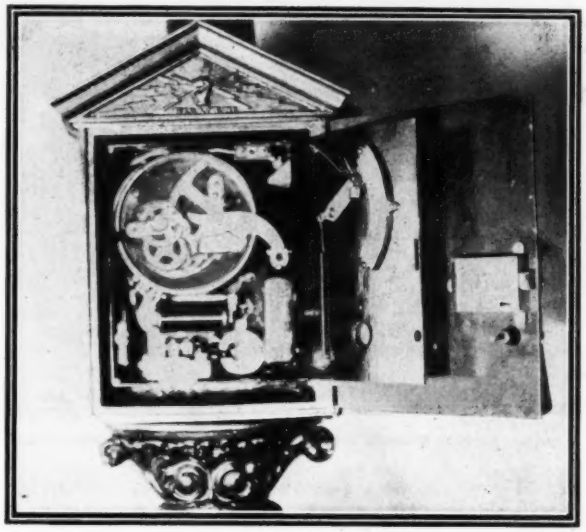


Fig. 8. Mechanism of Street Box.

containing the designation strip, gives all of the box numbers on the respective circuit.

Beneath the annunciator system are the line relays. These are mounted in a vertical position and inclosed in a glass case. This indicates the great precaution taken to guard against external damage from dust, or other sources of trouble making that would affect the delicate apparatus and consequently its reliability of action.

Mounted beneath the line relays on the face of the switchboard, are the switches for cutting in and out line and battery circuits; also the telegraph keys for manually telegraphing the box numbers on the circuits.

On the marble shelf at base of switchboard, are detector galvanometers, which are permanently connected, one with each line, and which instantly indicate any trouble that may develop on a circuit.

The small cabinets surmounted with glass cases in the center of the room, are the automatic, paper tape, registering devices, and the tower bell striking mechanism.

One of the paper tape registering devices is shown more in detail in Fig. 5. Inside of the glass case to the extreme right and supporting the paper tape reel, is a street box number recorder. Near the center of the case, with the paper tape from the recording apparatus passing through it, may be seen the date and time stamping clock. At the extreme left is the "take up" reel that coils up the paper tape record so that it may be retained as a permanent record of how an alarm was turned in and given attention.

Immediately in the rear of this recording device and at right angles to it, may be partially seen the tower bell striking mechanism. This device cost something over $8,000, and is a wonderfully ingenious and elaborate piece of mechanism. The apparatus contains a dial with hands similar to an ordinary clock. To put in operation, the telegraph operator sets the hands on whatever number he wishes struck on the bells and gongs, the machine does the rest, even to the extent of showing on the dial that it is performing its work correctly.

In Fig. 6 is shown the protector board. All lines pass through this protector board, which is equipped with both fuses and protector switches so adjusted as to give maximum protection with a minimum interruption to service.

A standard non-interfering street alarm box is seen in Fig. 7, and a citizen turning in an alarm is also shown.

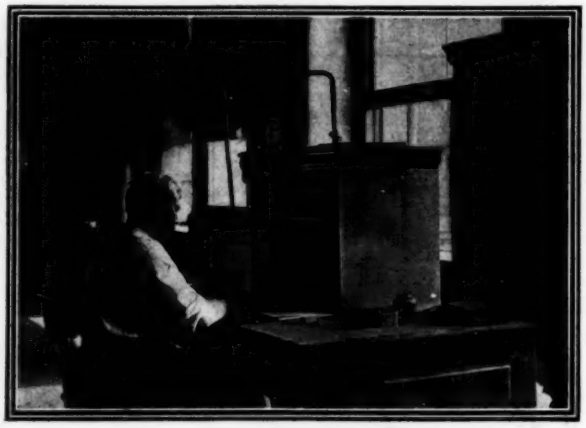


Fig. 9. Private Branch Exchange Board in Central Fire Tower.

In Fig. 8 is shown the automatic alarm telegraph mechanism within the inner inclosure of the box. All street boxes are non-interfering. That is, when an alarm is being turned in from any particular box on a circuit, subsequent turning in of an alarm, or tampering with any of the other boxes on the same circuit, will not interfere with the alarm signal from the first box pulled. When the signal from the first box pulled completes its record, subsequent boxes pulled will give in their record in regular order. This necessary feature, with the means for automatically telegraphing the box number, accounts for the amount of mechanism shown within the box in the illustration.

The telegraphic code of characters used to signal and to designate the street box number, are fashioned after the Morse telegraph character code, except dots only are used. Dashes could not be reliably and intelligibly sounded on bells and gongs. The mechanism in the street box contains auto-mechanical means for transmitting the electrical impulses forming the figure code, and to transmit the number of the box to the fire tower, is only a simple matter of puling a lever thus putting the box mechanism in operation.

It may be of interest to note that weights are used in lieu of springs to drive the mechanism in the boxes and to insure reliable operation at all seasons. It is claimed that springs are liable to break when used in cold climates. It is to guard against such a calamity that weights are used, for nothing is needed more, when it is needed than the fire department, except of course those who profit by the delay, and hate the sight of a fire box in their vicinity.

Every one is more or less interested in what takes place when an alarm is turned in. The citizen may be excited, but not so with the men behind the key and the wheel, for they have long been trained in annihilating space, time, and fires. Things happen, and happen so systematically and fast, that unless one knows just what is to happen, it will be over before a person realizes that it has really begun.

A party, upon discovering a fire, goes to the nearest street alarm box, all of which are painted red and easily seen; breaks the glass cover to small box on outer door of the street box, (the small box is shown on the door in Fig. 7); and secures a key with which to open the outer door of street alarm box. He then pulls the lever on the inside of street box and immediately lets go.

If he or she has not been "Oslerfied," no time will be lost in this operation. He has done his duty as a good citizen, and may retire to tell his experience next week, as ample volunteer assistance to impede progress will appear with the first appearance of the first companies on the horizon.

The operation of the lever in the street box automatically transmits the number of the box to the central fire tower four times. With the first movement of the street box lever, an electric impulse is sent over the alarm circuit to the fire tower and engine houses through which the particular alarm circuit passes. This first electrical impulse rings a bell and automatically releases the horses in the engine houses. They display human intelligence by understanding the signal and rush from their stalls to a correct position under the harness, which is at all times attached to the apparatus and suspended from the ceiling in a position to be dropped on the horses by a simple operation.

At the central fire tower, the first impulse of the street box lever set, the line number annunciator on the switchboard. This instantly is manifested to the telegraph operator on duty, by an audible bell ring, a visual red lamp burning, and the display of a target line signal.

The telegraph operator, upon noting the alarm signal, steps to the joker switchboard and throws a switch which connects the joker circuits of all the engine companies in the city together. The number of the street box being recorded on the street circuit, is then manually struck off three times by the telegraph operator, simultaneously on all of the joker circuits. This does not imply that all of the companies are to go to the fire, but it apprises them of the existence of the fire and notifies them to stand at attention for any emergency.

As previously explained, each of the street alarm circuits pass through engine houses only in the respective

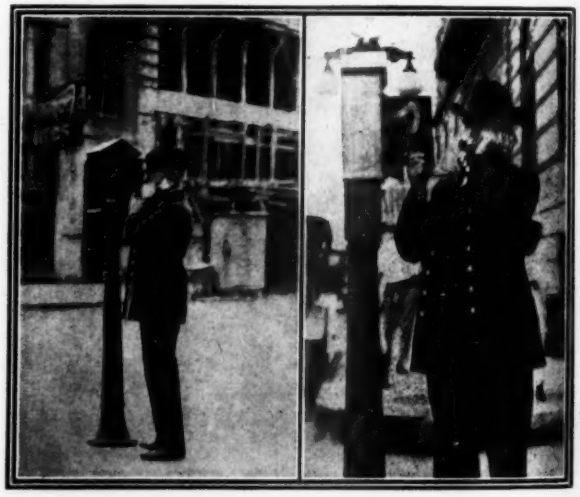


Fig. 10. Official Using Telephone Set.

district through which the circuit runs, or protects, and it is connected with tapper bells in each of the engine houses through which it passes. By this arrangement, all of the engine companies nearest the fire, get the first alarms direct from the street box, and simultaneously with the fire tower. Such companies as get this alarm make the

first run to the fire. If more companies are needed, they are called for by the district fire marshal, assistant chief, or fire chief, who turns in what is known as second or third alarms, as the exigencies of the case may demand.

The most alarming alarm is what is known as a general alarm. It differs from all others in that it calls out every company in the city. The means for turning in a "general alarm" and the telegraph code for doing so, is unknown to every one except the officials mentioned, and, consequently, it can never be fraudulently used. It may be of interest to state at this point, that what are commonly called "still alarms" are all alarms given in to the fire tower by telephone, or otherwise, not regularly pulled from a street box.

But to return to the central fire tower and to follow up the alarm to its completion. After the tower telegraph operator has manually struck off the box number three times on the joker circuits, he then sets a repeater which again transmits two rounds of the street box over the gong circuits to all of the engine houses.

The engine companies that respond to the first alarm, have four separate sources of alarm record on each alarm turned in, namely: Tapper bell on street box circuit; tapper bell and paper tape record on joker circuit; and gong signal on gong circuit. With this elaborate arrangement, it would be impossible for the engine companies to make a mistake in the location of any street alarm box that may be pulled.

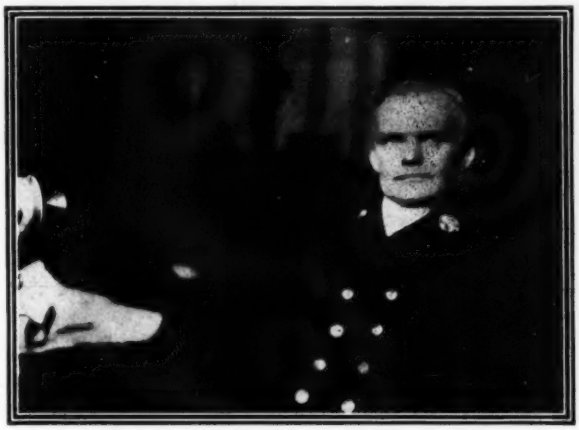
All alarms are automatically recorded, timed, and dated on the paper tape machines in the central fire tower, and the records kept on file for future reference. All alarm circuits are also tested by the telegraph operator every 20 minutes throughout the day of 24 hours, and every other precaution is taken to guard against failure of service in the smallest matter.

A practical feature worthy of special notice and also of particular interest to the profession, is the use, for

Fig. 11. Portable Telephone Set Used by Fire Company Officials.

tapping off the alarm box numbers, of vibrating, in lieu of single stroke, bells in the circuits at the engine houses. This is a distinctive and original feature of the Cincinnati system, and is claimed to give a much better, and more intelligent signal to the men on duty. It may also be of interest to know that all circuits are operated on what is known as "closed circuits," and that "open circuits" are not used for any purpose whatever.

The current used on all lines is 0.1 ampere. As all circuits are series, the resistance varies with the length and amount of apparatus in the circuit. This condition calls for a variation in the voltage on the circuit to maintain



Thos. M. Martin, Superintendent of Fire Alarm Telegraph.

the constant current of 0.1 ampere, and has been amply provided for with the switches shown on the face of alarm and power switchboards.

All telegraph and telephone circuits are placed underground in special lead covered cables. The telegraph alarm conductors are of No. 14, and the telephone of No. 18, B. & S. rubber covered, copper wire. The telephone conductors are twisted pairs, occupying the center core of the cable.

Generally speaking, every telephone in every city, town, village hamlet or remote farmhouse is a fire alarm box and may be used to summon help in some one form or another.

Telephones remote from and not forming a part of, a large city system, with facilities for instantly communicating with an efficient fire department, are none the less at a disadvantage, so far as turning in an alarm or summoning aid is concerned. But in such cases, the whole disadvantage is in the location and its available help.

In the large cities every telephone instrument added to the system increases the fire protection and helps reduce the great annual losses of life and property. Its value for this service alone is inestimable. This feature of the telephone service may be better appreciated when we fully consider the availability, convenience of location, simplicity and facilities provided by the telephone to instantly communicate with the fire department of a city.

Reporting a fire by telephone is one of the simplest operations of the entire service, and calls for the least effort on the part of the party giving the alarm. To report a fire, it is only necessary to remove the receiver from the hook and ask the exchange operator for the fire tower, or fire department. When the fire tower operator speaks, tell him as clearly and accurately as possible, the location of the fire; also, if convenient, the number of the telephone from which you are speaking. When the fire tower operator says "right," hang up the receiver so that the telephone line may be clear for further use.

Owing to the great advantage and facilities offered by the telephone for reporting and aiding in fighting fires, every municipal fire department should provide itself with a generous supply of telephones and connections for the purpose, including ample trunking facilities between the

central fire tower and all local city telephone offices.

The Cincinnati fire department has a standard private branch exchange switchboard, located in the central fire tower. This may be seen in the lower corner of Fig. 1, while a better view is given in Fig. 9.

The P. B. X. is a single position board with an ultimate capacity of 60 lines, and 56 in use. There are 76 stations connected with the switchboard. All trunk lines to the local city telephone offices, connect direct with this board, and are under its supervision.

The function of the private branch exchange system, is to furnish the service outlined as well as a general routine service to the engine companies and officials of the fire department. There is also a great amount of information given out to the public by the telephone operator on matters of general public interest as well as reports on the location of fires.

In Cincinnati it has been found that 75 per cent. of all alarms of fire, are reported on the telephone before the street box is pulled.

What greater service could the telephone render to humanity, than protect the lives, homes, and property of citizens? What greater evidence of reliability and public appreciation of its virtues can be found, than is found in this fact; that three-fourths of all fires in a large city are reported first by telephone?

The P. B. X. switchboard has no trunks or connections with the fire alarm telegraph switchboard, and cannot connect telephone lines to alarm circuits. This is right and proper for the best practice, for with this precaution, it is certain that the town will not burn while a telephone conversation is being fiddled off on the alarm circuits. However the Cincinnati fire department has an exclusive, original telephone feature in connection with the alarm circuits, that the writer is told, is not enjoyed by any other city in this country.

Each engine company in the city, and all officials of the fire department, carry in their conveyances a special portable telephone set equipped with cord and plug, and every street box has as a part of its regular equipment, a telephone spring jack connected with the alarm circuit. At the central fire tower there is also a spring jack connected with each alarm circuit, and the telegraph operator has a similar portable telephone set. These instruments can only be used by those in authority, hence no abuse can be made of the connection, and a wonderful amount of efficiency is gained by their use.

Two of the common and important uses of the portable telephone set are to quickly summon specific help; and upon a company arriving at a street box and not finding a fire, or any knowledge of the origin of the alarm, to call up the fire tower for further information.

The importance of this facility cannot be over-estimated, for at the late hour of the night, practically all places having telephone service are closed. During the business hours of the day, public telephones, that are supposed to be limited to five minute conversations, are seemingly used that number of hours, with conversations of no more importance than the official regulation of the amount of ventilation permissible in a peek-a-boo shirt waist.

To obtain connection from the street alarm box, the fire official plugs his telephone set into the spring jack inside of the fire alarm box and taps a special telephone signal on the telegraph key, the latter being part of the regular equipment of the box. The fire tower telegraph operator answers by means of a similar key. He then cuts in his telephone set and receives and executes the order, or gives the desired information. Fig. 10 shows an official using the set from a street alarm box and Fig. 11 gives details of the portable telephone set with the case for carrying when not in use.

The city of Cincinnati has for many years, maintained and enjoyed the most efficient fire department, and today ranks second to no other city in its fire fighting facilities.

D. F. Cash holds the responsible position of "Director of Public Safety." H. C. Bunker is chief and main pilot in the fire department and Thomas M. Martin is the superintendent of the fire alarm telegraph.

It may be of interest to the telephone fraternity to know that Mr. Martin is a veteran telephone man. He was engaged for 18 years in telephone service, and resigned his position with the A. T. & T. Co. to accept the superintendency of the Cincinnati fire alarm telegraph system.

Throat Telephones for Mine Rescuers.

Life saving in mine accidents will be aided by a device just perfected in the Pittsburgh station of the United States Bureau of Mines, according to an item in the New York Times. It is a neck telephone, which will permit of speech between the rescuer in the mine and those on the surface, while the former is struggling through smoke and gas. The apparatus has been tested and approved by the government engineers.

A notable example of the necessity of constant communication was shown recently at the Courtney mine disaster, when the failure of his breathing apparatus caused the death of a rescuer who was unable to call for help.

The device is not much different from the headgear worn by the average telephone operator. The receiver is strapped over the head and against the car, but the transmitter is a supersensitive plate strapped against the neck. All the rescuer does is to talk in his throat and he is heard distinctly by the man at the end of the wire, perhaps a mile or two away.

The new telephone can be used by rescuers who favor the mouth-breathing oxygen apparatus used by the professional members of the government rescue corps who are sent to all big mine catastrophies. On several occasions members of the corps have almost lost their lives when the apparatus went wrong, and were saved only through the timely arrival of comrades.

With the mouth-breathing apparatus which the government men use, the rescuer's mouth is covered with the inhaling and exhaling tubes, and he clamps his teeth on the covering to hold the air tubes in his mouth. This denies him the use of his lips and therefore an ordinary transmitter is impossible.

While using the ordinary desk telephone a year ago John W. Paul, chief of the government rescue corps, noticed the distinctness with which the voice would carry if the transmiter were placed against speaker's chest. By moving it to the neck he found the voice vibrations were clearer. A telephone manufacturing company received instructions to experiment with the idea and succeeded in devising an effective instrument.

Cost of Government Telephone System in London.

The Electrical Review of London states that a government report dealing with the development of the telephone system there, shows that, including £3,000,000 estimated expenditure for 1914, the total sum expended on the telephones since 1893 is £17,085,520, and this statement is exclusive of the purchase money for the plant, etc., from the National Telephone Co.—some £12,000,000.

In reply to a question in the House of Commons, the postmaster-general said that a new £10,000,000 loan was intended for capital expenditure on new plant for extension and development of the service, and no part is to be employed for reduction of telephone subscriptions. The bill providing for the issue out of the Consolidated Fund has been introduced.

Will It Be Ever Thus?

The Merger Idea—Is It a Happy Solution?—Some of Its Difficulties

By J. C. Kelsey

"And God shall wipe away all tears from their eyes.
And there shall be no more death, neither sorrow nor crying, neither shall there be any more pain,
For the former things are passed away."

I thought of John as I read the accounts of the Louisville telephone situation—where Mayor Head was overwhelmed by business men and others of Louisville, who congratulated him on his advocacy of a merger with a view of relieving subscribers from paying double toll.

Mayor Head says he merely suggested the merger as a "happy solution" of all telephone troubles.

Well, let us wait with a little bit of patience and see what becomes of this "happy solution."

I have never yet figured out who has been the happy one. So far the company which sells out is about the only happy one.

Neither the public nor the buyer have so far dipped deep into the Elysian fields of a "happy solution."

I do hope that if Mayor Head succeeds in solving the Sphinx-like riddle, he will live to see it as mayor. In other words, I want to see him lie in the bed that he made.

It may be that there will be no more death in Louisville, and no more sorrow, nor crying. But as I read the charges preferred by subscriber Hummelshine of Cumberland, Maryland, against the "happy solution" in his city, I am inclined to think that somewhere in the dim and distant past, some germ entered the human brain which makes men see things.

Just to illustrate the "happy solution" in Cumberland, Maryland, where the Maryland commission so frankly expressed its abhorrence of so-called Independent telephony. I am giving a few paragraphs of the complaint made by Mr. Hummelshine.

"Your petitioner now charges that from the time of said merger and consolidation of said two telephone companies, the telephone service in Cumberland and Allegheny county, furnished by the Chesapeake & Potomac Telephone Co. began to deteriorate and grow poor, and has continued so to deteriorate and become worse and worse, until today the telephone service in Cumberland is almost unbelievably bad, and is a matter of universal complaint, worry, trouble and inconvenience to the public; that the character of telephone service rendered by the said Chesapeake & Potomac Telephone Co. at the present time and ever since it obtained and enforced its monopoly of said business is and has been a travesty and a farce and an outrage upon the people of Cumberland;

And your petitioner now says said telephone service has become so bad that even the two Cumberland newspapers, the Daily News and the Evening Times, which for some reason best known to themselves, advocated the merger of said two telephone companies, have been compelled to criticize editorially the character of service which said Chesapeake & Potomac Telephone Co. is rendering in the city of Cumberland.

Petitioner further states that this condition of utterly inadequate and outrageous telephone service on the part of the Chesapeake & Potomac Telephone Co. has continued now for almost two years, without any hope or prospect whatever of any form or degree of relief, other than the periodical vague, indefinite and unfulfilled promise of the Chesapeake & Potomac Telephone Co., and that the telephone-using public of Cumberland is utterly weary and sick of the conduct of said company, its worthless promises, the insolence, impudence and impertinence of its operatives and employes, and its rotten service.

And petitioner, being advised that the Public Service Commission of Maryland is invested by law with some degree of authority and control over said Chesapeake & Potomac Telephone Co., and the character of its service and its business methods, does hereby petition your honorable body to investigate the matters herein set forth, viz.:

The character of the telephone service now being furnished to the people of Cumberland by said company, and to this end prays that your honorable body will at some early date convene in the city of Cumberland and grant a hearing in said city of Cumberland of the charges herein made, so that this petitioner and many other telephone subscribers in said city may have an opportunity to submit to your honorable body, evidence to substantiate the same.

Respectfully submitted,
(Signed) Theo. A. K. Hummelshine,"

It is plain, at least to the mind of Doctor Hummelshine, that the tears of Cumberland people have not been wiped away!

I know nothing whatever of the conditions in that city and must say that I hope the public will get a full measure of the affection they expected from that "happy solution."

Getting back to Louisville, it it plain that the feeling of a "happy solution" is not altogether unanimous.

I do not take business men seriously. Any business man who approaches the subject of one telephone in a city, simply because he can save $5.50 a month, deserves to be called the "original tight wad."

A Louisville telephone is worth $11 to any business man. It is the only cheap article now in that city—still they talk of making it cheaper!

Louisville has one paper, The Post, which seems to have some Missourian characteristics. It says, in the first place, that it does not blame President Gentry for the mistakes of the old Cumberland management.

Say, if President Gentry is going to be held for the Cumberland misdeeds of the past ten years, I feel sorry for him!

Here is what the Cumberland Telephone & Telegraph Co. stands charged with. When you finish, you will have reason to believe that Louisville should know what she is dealing with.

I. The Cumberland was aggressive.

II. It openly and unjustly attacked the credit of its competitor.

III. It resisted every reasonable regulation litigation.

IV. It maintained long and expensive litigation.

V. It evaded supreme court orders.

VI. It cut its system in two and established an imaginary line between urban and interurban communities.

So The Post expresses a belief that a company which has defied public opinion so long, can not change its spots with as much ease as is claimed.

"The Cumberland has gone from bad to worse in this community and, unless it is prepared to redeem itself in its actions and orders and decrees, these professions of profound concern for the future of Louisville, it can not regain what is essential to its prosperity—the goodwill of the community."

So it is plain that some eyes are open in Louisville.

"And there shall be no more death, neither sorrow nor crying, neither shall there be any more pain" in Des Moines.

Do you remember, Sweet Alice, the claims for the "happy solution" in that busy Des Moines town?

The mayor says the Bell company can never give good serv-

ice with its present equipment. Gentle reader, do you know what equipment that is?

It is the celebrated No. 1 Western Electric switchboard—the virtues of which you hear so much about!

Further, Mayor Hanna, of Des Moines, does not blame the local operating officials for poor service.

He believes, if the owners of the company would give the local men proper equipment, the service might be improved. But he flatly says, the city council is powerless to compel the company to make improvements.

Going further: "For the former things are passed away" in Detroit, too.

"Tales of lives of men, women, and children put in jeopardy by the present telephone service" were told by Dr. J. E. Smith at a hearing before the utilities board—intolerably poor service, rotten in every branch, waiting eight minutes for a call to be answered, false rings, broken connections, etc.

So here is the "happy solution."

While much of the above is more or less hysterical, there is some sense to it.

The question still remains unanswered: Was it not foolish to scrap the Home plant?

The question: Will it be wise to scrap such a busy system as the Louisville Home? Really, it is quite apparent that one company can not take up the burden borne by two companies in a great, growing city.

I believe the necessities of great cities, accustomed to the service of two companies, demands their continuation.

The talk of "double burden" is all folly! The cheapness of telephone service, as compared with every other utility, makes the talk of economy all the more absurd.

The Louisville Home system is an exceedingly busy one. For the ponderous Bell boards to load this service on to their present fairly busy system is suicidal.

There are many things that men should have sense enough not to do. This Louisville merger is one of them.

In the famous Lincoln (Nebraska) merger, it can't be said that the people of Lincoln are fully convinced of the "happy solution."

The citizens of Lincoln have asked for a rehearing, and have asked Louis Brandeis, the Boston lawyer, to represent them. Believe me, he will make a fight which the telephone interests will long remember.

The rates accorded Lincoln by the state board are very, very reasonable, and no subscriber has any reason to object. The service has always been ridiculously cheap, and it should have been higher.

What right has the public to wear out a telephone system without paying for it?

But my point is this: Is a merger in the large city ever destined to be the "happy solution"?

Will the public ever appreciate the noble things being done for them?

I really think that the man who originated the natural monopoly idea will yet have a dishonored grave.

It is the very claims that disturb people so.

People, as a rule, have their own troubles and duties, and don't care much about anything except that which is colored by romance, or great power, etc.

I do not believe in building another telephone system where one already exists, especially when it gives good service.

The Bell did it at Johnstown, and with disaster. They have done it elsewhere—and so have the Independents—so many of them foolish expenditures of money!

But when two strong telephone companies exist, the Bell strong in money and the Independents in subscribers, it is a different story.

The cart is before the horse, and proper locomotion is difficult.

One cannot help but admire the Michigan Bell's determination to hold Detroit.

It has bought, and bought again, and distributed a great deal of telephone junk about the earth. Yet the people are objecting to its philanthropic work in their behalf.

At least that is the way it comes to me—nothing but philanthropy.

And in Sioux City, the Iowa company has tried to be kind to the citizens—to wipe away their tears, etc. But the foolish public will not show any gratitude.

Will the worm ever turn, and punish the public by giving them *three* systems?

The dear public wants one telephone where two exist—and they want two where one exists!

What human being can solve the riddle?

Other Bell licensees have borne the burden of the "happy solution."

We have seen Baltimore taken over. It was a good riddance! We have seen numerous telephone companies disappear in other states, and with them their officials.

It is possible, in these days of "necessity" certificates, that these companies may never be duplicated. Anyway, the telephone problem is "as one born to trouble as the sparks fly upward."

I don't know where we are drifting—neither do you, nor do the inspired ones who presume to know. I don't believe any one agency can seriously control the telephone industry—American Bell admitted it when it took on its 3,000,000 connected stations,—and so vividly advertises it!

The capitalistic mind dreads competition, so the advertisement of 3,000,000 connected stations is used to show that they are no longer competitors, and it gives wonderful comfort.

Let us hope that Louisville shall study long before agreeing to the "happy solution." Let us hope that those who consent to it will keep their mouths closed when the "happy solution" unexpectedly hits their pocketbooks.

Somehow, monopoly always hits pocketbooks. It has no other real objective point. The monopoly matter contains no sentiment.

It is a great collector, too. It dallies with no delinquents and wastes no time in useless argument.

Monopoly is the hope of cowards, a blessing to incompetents and the sport of the unscrupulous.

These three classifications will comprise about all the human race.

One thing I like about merger deals. They tear off the mask. They leave us without doubt as to the identity of the parties.

No big Independent company, running into millions, can be anything but the finally absorbed party to a merger. Any big concern talking merger, might as well admit to Bell ownership, and do it cheerfully.

An awful lot of work must be done before the merger stage is reached.

I don't care who owns the properties. All we ask is that the small companies in the neighborhood shall know where they stand.

Why should a small company be loyal to a swallowed-up Independent, and thereby lose a chance to make a respectable connecting deal? It is not a fair game.

It is the little company, the company that will not profit the Bell, that I want to see perpetuated, and given a monopoly, too.

"And there shall be no night there,
And they need no candle, neither light of the sun."
Pretty, isn't it? And a happy solution!

MORAL: Municipalities should look before they leap.

Telephone Service Association Issues Courtesy Circular.

The Telephone Service Association has just issued a form for the convenient billing of charges for long distance calls to subscribers. A courtesy circular, intended for posting on bulletin boards in operating rooms, has also been sent out. Used in this manner, it will no doubt have a beneficial influence upon the operating force. The circular, copies of which may be obtained from the Telephone Service Association, is as follows:

A Compliment to Independent Long Distance Service.

One of our larger operating companies recently checked up their business and noticed that one of the largest hotels in their territory showed a very decided increase and the manager wrote the manager of the hotel, thanking him for the business received. The manager acknowledged the note and said:

You can rest assured we will do all we can to further the interests of your company. I want to congratulate you and your company on the improved long distance service. It is much the best and the public are beginning to comment on it.

It should be our aim to make not only every hotel manager but every subscriber and patron feel just the same.

Winning Friends by Telephone.

Friends are usually won or lost by our actions toward one another. Anything we say and the way we say it, has an influence in reflecting our personality. When we talk over the telephone, the smallest inflection of our voice is sent out to the person to whom we are talking—our personality has been put upon the wire, and it is pleasing or otherwise in proportion to the attention we give to making it so.

Employes of a telephone company should be the leaders in the correct use of the telephone. There are many thousands of employes in the Independent telephone ranks. Every one of them has a personality. Each one may be a factor in winning friends for the company, and each one has a responsibility in this respect.

Courtesy.

One of the surest ways of losing the regard of a person to whom we are talking, is to be inattentive to what he is saying. Concentrate on what is being said and talk with a smile. If you have made a mistake, excuse yourself, remembering that you have interrupted someone who is not to blame for the mistake. Courtesy is like oil to machinery—the lack of it will cause friction, and friction in telephone talking, is a thing which is to be avoided.

The Value of Courtesy.

Courtesy is valuable because there is not more of it—on the other hand, the more there is of it, the more valuable it is. A study of comparative results in being courteous and in not being courteous, shows that courtesy has a real commercial value. It pays. It wins friends for you. While you are speaking on company matters, you are "the company" to that person, and your courtesy over the telephone wins friends for the company.

Courtesy in dealing with the public is a big factor in shaping public opinion towards the company. The public has a right to expect courtesy, and each employe has a responsibility to see that it gets it.

We take it for granted that a shoe manufacturer knows more about shoes than we do. We would go to him for information about shoes. A telephone company is selling telephone service—the use of a telephone, and it is natural that we should be expected to know more about its correct use than an outsider.

And after all, it is largely a matter of habit. The more courteous we are, the more courteous we become. We may give it away at every opportunity, but it increases twofold. It gives us a sense of satisfaction that we have done the right thing and we have been "winning friends by telephone."

At the Missouri convention last week, Manager Frank L. Eldridge of the Service Association was greatly pleased by the interest evinced in the work of the association by the Missouri telephone men.

Mr. Eldridge reports that the membership list is growing steadily. The association also has on its staff of experts John W. Coffey, who is installing a system of accounting for the organization. Mr. Coffey is familiar with the accounting system prescribed by the Interstate Commerce Commission and his services greatly strengthen the staff of the Service Association.

Government to Sell Lumber and Cedar Poles.

A sale of government timber involving 70,450,000 board feet and 286,000 linear feet of cedar poles in the Olympic National Forest, Washington, is to be held by the government.

Though all the timber will be sold to one bidder, it lies in two blocks, separately by an old burn, the result of a fire which consumed the timber on the intervening land. The first block is within the watershed of Little River, and is estimated to contain 16,060,000 board feet of Douglas fir, 1,780,000 feet of red cedar, 2,160,000 feet of western hemlock, and 100,000 linear feet of cedar poles.

The cedar poles will be sold for not less than 0.75 cent a linear foot for poles under 45 feet in length, with not greater than a 10-inch top diameter; 1.25 cents a linear foot for red cedar poles, 45 feet and over in length, with not greater than a 10-inch top diameter.

On the second block, which is in the watershed of Ennis and Lake Creeks, there are estimated to be 31,400,000 board feet of Douglas fir, 5,430,000 feet of red cedar, 13,400,000 of hemlock, 220,000 of amabilis fir, and 186,000 linear feet of red cedar poles. The rates for cedar poles are similar to those prescribed for the first block.

A period of five years will be allowed for the cutting and removal of the timber, subject to a readjustment in stumpage prices at the discretion of the forester in 1916.

Honey in a Cable Box.

A flock of talkative bees out north of town went into partnership with the Home Telephone Co. recently, says the Warrensburg (Mo.) Journal. Their enterprise conflicted with public service, however, and the linemen dissolved the partnership.

A swarm took up residence in the cable box near the Minshall place, north of the city. Will Waller and Louis Davis were assigned the task of routing the intruders. They fixed a torch on the end of a pike pole to smoke out the bees. There was trouble in a minute, as the bees defended their domicile to the utmost.

Waller says Davis retreated, and Davis says Waller ran. They both recovered their nerve and finally conquered. After getting about ten pounds of fine honey out of the box with their pole, they gave the bees a chance to find another lodging place before repairing the box.

Missouri Telephone Association Holds First Convention

New Association Formally Launched at Rousing Convention Held on August 20 at Sedalia, Mo.—Ninety Representatives of Telephone Companies of Missouri Attend in Response to Call Issued by Independent Telephone Men of State

Representatives of 90 telephone companies in the state of Missouri assembled at Sedalia, Mo., on August 20 pursuant to a call signed by a number of Independent telephone men and sent out following a preliminary meeting held at Sedalia on July 15 and reported in TELEPHONY of July 26. The meeting was called to order at 2 o'clock p. m. by President Houck McHenry, of Jefferson City, Mo., who introduced Mayor Ludemann, of Sedalia. The latter, in a happy speech, gave the telephone men a hearty welcome to the city. M. V. Carroll, secretary of the Boosters' Club of Sedalia, then gave to the representatives a second welcome and an invitation to become the Boosters' guests at a smoker at Liberty Park beginning at eight o'clock that evening. Dr. S. T. Neill, of the Missouri Union Telephone Co., of Clinton, Mo., responded to the invitations and speeches of the above named gentlemen in the humorous way which has characterized the doctor as the only after dinner speechmaker within the membership.

Houck McHenry, the president, then read the objects and intents of the organization which are fully explained by section 2 of the articles of the association, which are as follows:

"The objects and purposes of this association shall be to aid the members in securing, and the Public Utilities Commission in formulating and promulgating, fair and just rules and regulations of the telephone business, under varying conditions, in this state; to secure fair, reasonable and adequate rates for service rendered; collect, systematize and classify information and data concerning the telephone business and make it available for the use of the members of this association; to promote and systematize uniformity in accounting, operation, maintenance and construction for the growth and general development and extended use and service of telephone communications; and to mutually work together to develop and promote the telephone business in the state of Missouri.

F. B. MacKinnon, secretary of the Kansas Independent Telephone Association, who was present, was called upon and gave a report of how the companies in Kansas, through their organization, are doing effective work for themselves and aiding the commission of that state in getting the proper data for the regulation of the telephone business.

The committee on by-laws appointed at the meeting on July 15, made a report which was adopted with few changes. The by-laws provide that the association shall be governed by a president, four vice-presidents, secretary-treasurer and an executive committee composed of eleven members, of which the president and secretary-treasurer of the association are ex-officio members and president and secretary thereof. All officers are elected by the association except the secretary-treasurer who is elected by the executive committee.

The officers for the next year are: Houck McHenry, Jefferson City, Mo., president; M. L. Golladay, Holden, Mo., first vice-president; H. C. Todd, Maryville, Mo., second vice-president; C. W. Boutin, Cape Girardeau, Mo., third vice-president; T. J. Buchanan, California, Mo., fourth vice-president.

The secretary must maintain an office in Jefferson City which will be opened on September 1. The executive committee will have its first meeting in Jefferson City on September 16, at the office of the secretary.

Every one present at the meeting seemed to feel that the keynote had been struck and all who attended went home feeling that they had been well paid for the time spent.

Any person, firm, association, company or corporation owning and operating a telephone exchange, exchanges, or toll lines within the state is eligible to membership in the new association.

The Missouri companies which joined the association at Sedalia, are as follows:

Missouri Union Telephone Co., Clinton; United Telephone Co., Cole Camp; Holden Home Telephone Co., Holden; Macon Telephone Co., Macon; Citizens' Home Telephone Co., Higginsville; Hanamo Telephone Co., Maryville; Capital Telephone Co., Jefferson City; Otterville-Smithton Telephone Co., Otterville; Northside Telephone Co., Parkview; Tebo Telephone Co., Calhoun; Boonville Telephone Co., Boonville; Austin-Inland Telephone Co., Harrisonville; Clarksburg Telephone Co., Clarksburg; C. T. McLaurine, Oak Grove; Cape Girardeau Bell Telephone Co., Cape Girardeau; Columbia Telephone Co., Columbia; Bunceton Independent Telephone Co., Bunceton; Enterprise Telephone Co., Pilot Grove; Tri-County Telephone Co., Nelson; California Telephone Co., California; Willow Springs Local & Long Distance Telephone Co., Willow Springs; Cowgill Telephone Co., Cowgill; Eldorado Springs Telephone Co., Eldorado Springs; Sheldon Mutual Telephone Co., Sheldon; Sweet Springs Telephone Co., Sweet Springs; Bates & Henry Telephone Co., Johnstown; Speed Telephone Co., Speed; Elmer Telephone Co., Elmer; Atlanta Telephone Co., Atlanta; Butler & Rich Hill Telephone Co., Butler; Laclede County Telephone Co., Lebanon; Shelbina Telephone Co., Shelbina; Clarence Telephone Co., Clarence; Chilhowee Telephone Co., Chilhowee; Pleasant Hill Telephone Co., Pleasant Hill; Versailles Telephone Co., Versailles; Conception Junction Telephone Co., Conception Junction; Urich Telephone Co., Urich; Borland Telephone Co., Aullville; Green Ridge Telephone Co., Green Ridge; Weston Telephone System, Weston.

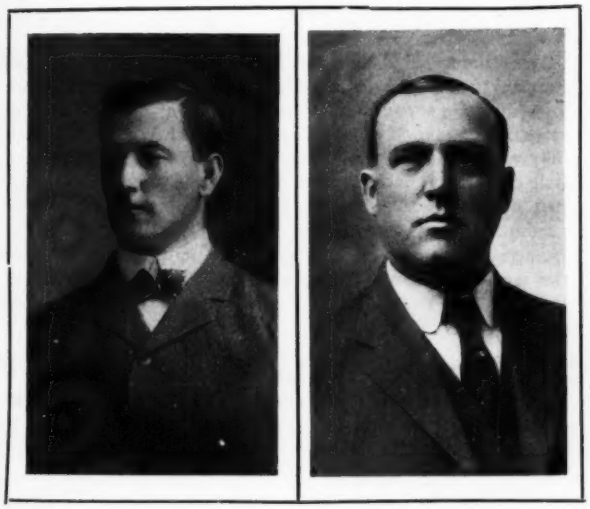
The delegates who attended the convention were:

W. O. Randall, Home Telephone Co., Joplin; L. S. Arni, Otterville-Smithton Telephone Co., Otterville; C. E. McNew, Cowgill Telephone Co., Cowgill; O. E. Keithley, Vandalia; Hermann Eckhoff, United Telephone Co., Benton County, Lincoln; H. M. Bryan, Sedalia; L. F. Coulter, Boonville Telephone Co., Boonville; Jas. Thompson, Bunceton Independent Telephone Co., Bunceton; Ray Lotspiech, Tri-County Telephone Co., Nelson; Wm. Sweeney, The Chilhowee Telephone Co., Chilhowee; C. W. Boutin, Cape Girardeau Bell Telephone Co., Cape Girardeau; Houck McHenry, Capital Telephone Co., Jefferson City; Joseph Minter, Otterville-Smithton Telephone Co., Otterville; A. E. Poteet, Kansas City; W. T. Curtis, American Electric Co., Chicago, Ill.; T. L. Dunlap, Monarch Telephone Mfg. Co., Ft. Dodge, Iowa; Ed. A. Hook, Appleton City; John J. Steele, Green Ridge Telephone Co., Green Ridge; W. L. Bonnell, Hurdland & Locust Hill Telephone Co., Hurdland; F. L. Eldridge, Telephone Service Association, Chicago, Ill.

J. A. White, Kellogg Switchboard & Supply Co., Kansas City; Gabe L. Purcell, Conception Junction Telephone Co., Conception Junction; F. A. Rader, Frank B. Cook, Chicago; H. C. Todd, Hanamo Telephone Co., Maryville; M. L. Gol-

laday, Holden Home Telephone Co., Holden; F. L. Mixson, Elmer Telephone Co., Elmer; N. W. Baldwin, Stromberg-Carlson Co., Rochester, N. Y.; C. A. Mahan, Stromberg-Carlson Co., Kansas City; Geo. H. Hickman, Edina Telephone Co., Edina; John Wantland, The Chilhowee Telephone Co., Chilhowee; G. V. Ross, St. Louis; O. V. Sells, Andrew County Mutual Telephone Co., Savannah; A. M. Benedict, Richards Telephone Co., Richards; Chas. R. Pratt, Lead-Belt & Flat River Telephone Co., Flat River; W. E. Owen, Missouri Union Telephone Co., Clinton; R. A. Guthrie, Macon Telephone Co., Macon; J. A. Hudson, Columbia Telephone Co., Columbia; S. E. Brooks, Prairie Home Telephone Co., Prairie Home.

T. C. Jones, Kingston Telephone Co., Kingston; C. Bryant, Kingston Telephone Co., Kingston; John C. Hall, Commercial Telephone Co., Union; John C. Hall, Franklin Independent Telephone Co., Washington; Harry N. Farris, Kellogg Switchboard & Supply Co., Kansas City; S. R. Smith, Home Telephone Co., Sedalia; H. L. Lineweaver, Mutual Telephone Co., Sheldon; W. G. Reed, Butler & Rich Hill Telephone Co., Butler; J. O. App, Austin-Inland Telephone Co., Harrisonville; Geo. L. Swackheimer, Urich Telephone Co., Urich; W. J. Gold, Clarksburg Telephone Co., Clarksburg; E. S. Robinson, Kansas City; A. T. Nelson, Laclede Telephone Co., Lebanon; Chas. D. Steele, LaMonte Telephone Co., LaMonte; W. R. Journey, Citizens' Tele-



Houck McHenry. Ed. A. Hook.

phone Co., Higginsville; J. H. Wiegers, Borland Telephone Co., Aullville; J. Willis Smith, Sweetsprings Telephone Co. Sweetsprings; H. C. Houston, Warrensburg Home Telephone Co., and Pleasant Hill Telephone Co., Warrensburg; A. B. Clark, Kansas City Long Distance Telephone Co., Kansas City; Kansas City Long Distance Telephone Co., Kansas City; F. B. MacKinnon, secretary Kansas Telephone Association, Topeka; P. C. Greene, Missouri Valley Telephone Association, and Missouri Valley Telephone Co., Hale. This company is composed of the following: Hale Telephone Co., Hale; Bosworth Telephone Co., Bosworth; Tina Telephone Co., Tina; Bogard Telephone Co., Bogard; and Home Telephone Co., Hale.

F. B. MacKinnon, secretary Kansas Independent Telephone Association, Topeka, Kas.; O. B. McCoy, Chula Telephone Co., Chula; J. E. Thomas, Laredo Telephone Co., Laredo; H. C. Kueck and A. W. Gruebbel, Concordia Telephone Co., Concordia; E. H. Huffman, Atlanta Telephone Co., Atlanta; H. H. Snyder, Manhattan Electric Supply Co., St. Louis; H. H. Snyder, Manhattan Electric Supply Co., St. Louis; S. T. Neill, Missouri Union Telephone Co., Clinton; Arthur Allen, Bates & Henry Telephone Co., Johnstown; W. E. Naylor and L. E. Eagle, Clarence Telephone Co., Clarence; G. W. Schweer, Missouri Union Telephone Co., Windsor; L. L. Richardson, Tebo Telephone Co., Calhoun; F. A. Squires, Houstonia Telephone Co., Houstonia; L. Heaton, Humansville Telephone Co., Humansville; Henry Bohling and A. E. Wright, United Telephone Co., Benton County, Cole Camp; Austin D. Wolfe, North Side Telephone Co., Parkville; T. J. Buchanan, California Telephone Co., California; J. B. O'Brien, Wesco Supply Co.; St. Louis; B. E. Eoff, United Telephone Co. of Benton County, Warsaw; H. Harrison Simpson, Enterprise Telephone Co., Pilot Grove; V. E. Durham, Shelbina Telephone Co., Shelbina; S. F. Caldwell, New London; J. H. Cheney, Home Telephone Co., Sedalia; Geo. E. Anderson, Wesco Supply Co., St. Louis; H. W. Schwalm, Eldorado Springs Telephone Co., Eldorado Springs; W. Berrier, Norborne Telephone Co., Norborne; Jas. M. Ward, Leeton Telephone Co., Leeton; C. M. Carter, Versailles Telephone Co., Versailles; W. T. McLaurine, Oak Grove Home Telephone Co., Oak Grove; D. E. McArthur, Speed Telephone Co., Speed; J. W. Heneeman, Warrensburg.

New Telephone Exchange at Canton, China.

Consul General F. D. Cheshire, located at Canton, China, reports that a new three-story telephone exchange is being constructed at Canton.

It will have reenforced concrete floors, steel-beam columns coated with concrete, and the cost of construction is about $60,000, local currency. The building covers 100 by 60 ft. The value of the land is about $20,000, local currency. This is on the Bund adjoining the Young Men's Christian Association property.

The local telephone administration at Canton is a part of the national system, which is under the Ministry of Communications at Peking. Purchases of equipment are usually made through Shanghai. No purchases over $20 gold can be made without sanction from Peking.

At Canton equipment has been ordered principally from the Nippon Electric Co., Mita Shikokumachi Shibaku, Tokyo, Japan, owing to the fact that until recently the engineer of the local administration was a Japanese. In the new exchange to be erected new equipment will be installed, the contract having been given to the Ericsson Mfg. Co., a Swedish concern.

The Canton telephone system consists of four exchanges, as follows: Head office, 553 subscribers; Sai Kwan office, 587 subscribers; Honam office, 165 subscribers; Tung Kwan office, 126 subscribers.

All these offices are situated in Canton and suburbs. Each subscriber is on one line only. The type of equipment is the magneto. During the daytime the "pole changer" equipment is used; after 9 p. m. the generator.

A Unique Telephone Service Idea.

Tired of being a trained nurse, Miss Alma E. Wrigley of Los Angeles, Calif., decided to think out some new way of earning a living. Her unique enterprise is this: She has established a telephone exchange, to be operated during the winter months only. She has announced that she will procure the names of all tourists who come to Los Angeles, Pasadena, and the surrounding towns and will thus be able to bring Easterners, who are friends, into touch with each other. As tourists are in California principally for a quiet winter, they might pass the whole time without encountering one another.

All that is necessary is to call Miss Wrigley's exchange and ask: "Who is here from ———?" The names of the people from that place will then be read to the calling party, providing the fee is forthcoming.

LaCrosse Telephone Company Has Another Excellent Year

Net Income of $15,343 Permits Payment of 7 Per Cent. on Preferred and 8 Per Cent. on Common Stock Leaving Surplus of $2,371—Year's Reserve for Depreciation is $15,739—Plant Account is $269,646 and Total Stock Issue $180,400

The La Crosse Telephone Co., of La Crosse, Wis., has published its annual statement of income and profit and loss account for the fiscal year ended June 30, 1913, and balance sheet of the same date. This is the last annual statement to be published by the company as of June 30, because the legislature has changed the reporting date to December 31.

The La Crosse company has been operating under the jurisdiction of the Interstate Commerce Commission since January 1, 1913, and will report to the government as well as to the state on December 31, 1913, using a different classification as prescribed by the Interstate Commerce Commission.

The present report of the company makes a good showing and is an improvement over the good report of last year. The total operating revenue is $70,978 as compared with $64,777 last year and the total operating expenses $55,184 as compared with $50,627. The expense figures include a depreciation charge of $15,739 as compared with $13,620 last year. The gross income is $17,052 as against $15,304 in 1912. This sum, less $1,708 interest on the floating debt, leaves a net income of $15,343 as compared with $13,999 last year. Seven per cent. was paid on the preferred stock, or $8,971 and 8 per cent. on the common stock, or $4,000, leaving a 12 months' surplus of $2,371 as compared with $2,484 last year. During the year 474 new telephones were added to the service, increasing the number to 4,572 on June 30, 1913. The company also served 403 additional telephones owned by others for which no toll charge is made for connections.

The balance sheet shows the plant account as of June 30, 1913, to be $269,646, which includes additions of $19,765 during the year. Against this is a total capital stock issue of $180,400 and a floating indebtedness of $29,700. The total reserve which has been set aside for depreciation is now $72,966.

Winter Files Answer in LaCrosse Suit.

Attorney Frank Winter has filed answer in the Dane county circuit court at Madison, Wis., in the suit filed by the Wisconsin (Bell) Telephone Co., against himself, The La Crosse Telephone Co., and the Wisconsin Railroad Commission for a vacation of the order of the Wisconsin commission, compelling physical connection between the Bell toll lines and the Independent telephone company at La Crosse.

In his answer, which has been made public, Mr. Winter denies the allegation that he was urged by the La Crosse company to petition the commission for the physical connection order and further recites that Bell subscribers are "at present very much inconvenienced by the conditions existing at La Crosse and the unsocial practices of the telephone companies in refusing the subscribers of the competing exchange any facilities whatever except under the most onerous and burdensome conditions which they can impose."

Mr. Winter points out that subscribers of the Independent company are in the majority in La Crosse and are entitled to long distance service under the connection law, and that the refusal of the Bell company to grant such connection results in great inconvenience. He states his belief, also, that the Bell company is losing money on its La Crosse exchange and that it would be to its advantage to make the physical connection.

Such physical connection, the answer declares, will not lessen the service of Bell company but that, on the other hand, the Bell subscribers will be benefited by the use of the Independent's lines.

BALANCE SHEET AS OF JUNE 30, 1913, AND STATEMENT OF INCOME AND PROFIT AND LOSS ACCOUNT FOR THE 12 MONTHS ENDING JUNE 30, 1913. UNDER ACCOUNTS PRESCRIBED BY THE RAILROAD COMMISSION OF WISCONSIN.

BALANCE SHEET, JUNE 30, 1913.

ASSETS.

Plant account June 30th, 1912		$249,881.03
Additions during year—		
Land	$ 4,000.00	
Buildings, Fixtures and Grounds	3,542.20	
Wire Plant, Construction and Equipment	6,825.58	
Sub-station Equipment	3,540.54	
General Office Equipment	158.53	
Stores Department Equipment	.00	
Utility Equipment (Teams)	.00	
Miscellaneous Equipment (Tools)	98.40	19,765.25
Plant Account June 30th, 1913		$269,646.28
Current Assets—		
Cash	$ 1,384.19	
Notes and Bills Receivable	1,700.00	
Accounts Receivable, Toll System	42.54	
Accounts Receivable, Exchange System	2,017.95	
Materials and Supplies	9,625.39	
Miscellaneous Accounts Receivable	339.97	15,049.04
Prepaid Accounts		
Prepaid Insurance	249.04	
Prepaid Directory	345.48	
Prepaid Rent	85.00	
Prepaid Interest	10.48	690.00
Investments in Other Telephone Companies		5,795.00
Total Assets		$291,741.00

LIABILITIES

Common Stock Authorized and Issued		$ 50,000.00
Preferred Stock Authorized	$150,000.00	
Less Treasury Stock	19,600.00	130,400.00
Total Capital Stock Issued		180,400.00
Reserve for Depreciation		72,966.53
Reserve for Employes' Compensation		424.91
Notes and Bills Payable (to Individuals)		10,000.00
Notes and Bills Payable (to Bank)		19,700.00
Accrued Taxes		914.35
Accrued Interest		185.04
Surplus This Date		6,946.86
Total Liabilities		$291,741.00

EXTENT OF EXCHANGE SERVICE.

Number of Telephones in service July 1st, 1912	4,098
Net Increase for 12 months	474
Number of Telephones in service June 30th, 1913	4,572
Number of Telephones owned by others for which no toll charge is made for connections	403
Total Number of Telephones Connected to Exchange System June 30th, 1913	4,975

Statement of Income and Profit and Loss for 12 Months Ending June 30th, 1913.

Operating Revenues—		
Local Subscribers Telephone Earnings	$ 65,374.02	
Local Pay Station Exchange Earnings	160.50	
Rural Telephone Earnings	3,066.25	
Exchange Connection Earnings	180.00	
Toll Connection Earnings	1,126.80	
Miscellaneous Exchange System Earnings	1,027.46	
Toll System Earnings	1,044.30	
Total Operating Revenues		$ 70,978.33
Operating Expenses		
Central Office (Traffic)	$ 13,536.07	
Wire Plant (Transmission)	4,954.20	
Sub-station (Terminal)	5,332.12	
Commercial	4,016.45	
General	7,856.41	
Undistributed	3,500.50	
Depreciation	15,739.80	
Taxes	1,057.82	
Total Operating Expenses		55,184.47
Net Income of Operating System		$ 15,793.75
Non-Operating Revenue—		
Profit on Merchandise Sales	$ 571.49	
Wiring and Installation Work	4.10	
Miscellaneous Non-Operating Revenue	144.80	
Rents from Lands and Buildings	30.00	
Total Non-Operating Revenue		750.39
Gross Income of Operating System		$ 16,543.84
Non-Operating Revenues as a Whole—		
(Interest on Deposits) Cash Discounts	376.27	
Interest on Investments	332.00	
Total Non-Operating Revenues as a Whole		$ 508.27
Gross Income		$ 17,052.11
Deductions from Gross Income—		
Interest on Floating Debt		1,708.86
Net Income		$ 15,343.25
Disposition of Net Income—		
Preferred Stock Dividends, 7 per cent	$ 8,971.87	
Common Stock Dividends, 8 per cent	4,000.00	
Total Disposition of Net Income		12,971.87
Surplus This Date for 12 Months		$ 2,371.38

NOTE—This is the last annual statement to be published as of June 30th, because the legislature has changed the reporting date to December 31st. This Company has been under the jurisdiction of the Interstate Commerce Commission since January 1st, 1913, and will report to the government as well as the state December 31st, 1913, using a different classification of accounts as prescribed by the Interstate Commerce Commission, although our newspaper reports are still voluntary and not by order of any commission.

W. F. GOODRICH, Manager.

Reproduction of Half Page Advertisement, Showing Result of Year's Operation of La Crosse Telephone Co.

The Rejuvenation of the Craneville Telephone Exchange

A Story in Serial Form, Telling How a Rundown Telephone Plant Was Rebuilt, Enlarged, and Changed Successively from a Grounded to a Local Battery Metallic System and Later to Common Battery—Third Installment

By Paul Hamilton

It was just past noon when Mr. Barrows called up from the hotel, and, with some difficulty, advised Frank, who had rescued him from the irritable Kitty, that he would not visit the exchange until the following day. He said he might be expected at about ten in the morning.

This arrangement was quite agreeable to Frank. It would give him an opportunity to tidy up the switchboard and clear two or three cases of trouble, and perhaps afford him time to locate the cause of the noise in the board and the trouble which caused several drops to fall when certain subscribers rang up the exchange.

It may be said in Frank's behalf, that he was what may be termed a practical telephone man, and had he been furnished with proper material, the Craneville plant would not have deteriorated into a junk heap. As it was the outside trouble had increased to such an extent that the switchboard had been sadly neglected. The attention it had received was hurried and only such hasty repairs were made as to keep the boards from going out of service altogether.

Of late there had been little incentive for him to do his work in a workmanlike manner, though, if he had had the spare time, his natural tendency toward neatness would have prevailed. He did not care to have Mr. Barrows inspect the board in its present condition and worked far into the night, lacing up forms, tightening loose drops, and soldering loose connections until he found it too late to attempt to locating the two chronic cases of trouble.

Another thing, Frank was loyal to his employer and desired to assist him in every way he could in securing as good a bargain as possible.

Personally, all his interests were centered in Craneville. He had built and nearly paid for a comfortable home. His two children were attending school. His wife had never been separated from her own people and early associations.

He believed in the future advancement of the town and had faith in a well managed telephone enterprise receiving general patronage and support. On the whole, he desired to see the plant rejuvenated and hoped to have a part in the task when it should be undertaken.

With a very little assistance of a technical nature, he was a man with sufficient energy and ability to undertake the work. Thoroughly familiar with every detail of the plant, he was in a position to point out the weakest spots which would necessitate the "first aid to the injured."

As he walked home at midnight, he could not help but feel that the hope he had seen fading month by month was about to return to full bloom. Rankin was not a man to misjudge men upon brief inspection, and Rankin had spoken his opinion in unmistakable terms. The uncertain element remaining to be solved was what policy Mr. Barrows would pursue, if he took over the plant. Tomorrow perhaps would tell.

At ten o'clock Frank returned from his trip to the brick yard and found his employer and Mr. Barrows at the office.

"Hello, Frank. Call up the barn and have a rig sent up. Mr. Barrows just came in and I thought perhaps he'd like to see a little of the outside lines," said Mr. Rankin.

"It is obliging of you I'm sure, but I put in yesterday afternoon looking over the outside conditions and thought this morning I'd inspect the inside a little. After that we can get down to business, perhaps," interjected Mr. Barrows.

"Well, the board is back there. You're free to inspect it as thoroughly as you like," returned the owner.

Mr. Barrows followed Frank into the exchange room where Kitty was just finishing her usual morning's tirade about certain individuals and the people of Craneville in general.

The two men stood a little distance from the board

"The Two Men Stood a Little Distance From the Board."

watching the drops as they fell and observing Kitty as she answered the calls. When drop 116 fell, she made a vicious lunge at the jack with a plug, jarring the entire board, and causing some eight or ten other drops to fall.

"There, look at that! This old board is going to fall down some day. Stop your screaming at me or you won't get nothing; maybe you won't, anyway."

"Oh, yes, come right up. Don't stop to wash the dough off your hands."

"Oh, you do, do you? You 'spose one-twenty-six is busy. Well, it ain't, but it will be right now, 'cause I'll use the line myself rather than let you have it."

"Say Frank, look at that," she exclaimed as six drops fell at once. "You can have one-twenty-six. I ain't got time to waste with you," she told the subscriber.

"That's Old Mis Stokes ringing. She tries to ring down every drop on the board," she went on, turning to Frank. "Can't you do something? There she goes again. I guess I'll answer her this time so I won't have to put them drops up again."

After she had answered Mrs. Stokes, no more drops fell but there was an intermittent sound of vibrating armatures.

"Kitty, you've shaken that brace loose again," Frank remarked as he went behind the board and replaced an improvised support that held the drops to their proper level.

Until noon Mr. Barrows stayed in the exchange saying very little but looking carefully into all the accessories used in operating the board. At noon he said he would return after dinner and have a final interview with Mr. Rankin.

Frank went home to dinner somewhat downcast. Two of

"Frank Went Home to Dinner Somewhat Discouraged."

his chronic cases of trouble had come in, right in front of the visitor's eyes. Mr. Barrows had been exceedingly reticent. His pertinent questions were but two; the number of telephones in actual service and the number of drops on the board available for use.

"Well, if he buys the plant, it will certainly be upon his own judgment," Frank commented inwardly.

When he returned to the office, he found Mr. Rankin seated at his desk, with the usual serene expression upon his face.

"Well, Frank, what's the good word? Could you satisfy Mr. Man's inquisitiveness?"

Frank was explaining the morning's experience to his employer when Mr. Barrows entered the door. Thereupon he cut his story short with a remark relative to some work requiring his attention and left the office.

"Come in, Mr. Barrows, come in. Glad you came. I'd have been gone in another half hour," said Mr. Rankin. "How are you getting along with your investigation?"

"It's about completed I believe," returned Mr. Barrows. "I'm willing to confess that I'm ready to talk business."

And talk business they did until late in the afternoon. Mr. Rankin found himself at a disadvantage. His unfamiliarity with the cost of the simplest items required to restore the plant to anything like a state of standard efficiency, kept him from getting far from the protection of the liberal conditions of his franchise. Mr. Barrows soon discovered the chief thought in Mr. Rankin's mind, and insisted that a franchise in itself was very far from a revenue-earning proposition; that a great deal depended upon the good will of the public, which was, apparently, not to be counted as an asset in Craneville.

In spite of Rankin's natural aptness for trading and executing profitable deals, he allowed Barrows to drive a hard bargain for the plant, and accepted just half the amount he had at first fixed in his mind.

A full week elapsed before the new owner took possession of his property. During that time Frank continued his efforts to clear the cases of trouble which had worried him so long. He called upon Germany Dietz to assist him for two evenings, but their combined efforts failed. The board was still noisy and certain drops were being rung down when other subscribers called the office.

He had been advised that he would be retained in the service, for a time at least, and was satisfied that the opportunity would be sufficient for him to "make good." Therefore he was prepared to welcome his new employer with genuine cordiality.

He had even cautioned Kitty about her work at the board, advising her that careful and considerate operating would do much to overcome the prejudice of the subscribers toward the telephone company.

"I don't care what they think or how mad they get," was her answer. "It just goes to show what kind of people they are here in this town. I ain't paid to run this switchboard. I'm paid for being secretary and bookkeeper. It's a thank you job for which there's nothing but kicks. I'll be glad when Mr. Barrows gets some one else to 'tend to it."

"I'm glad you look at it that way, Kitty. I was just going to 'tip you off' that he intends getting some one, as Mr. Rankin can't spare you," said Frank.

"Well, I never," blazed Kitty, "it's a wonder he wouldn't ask me if I wanted to stay. Pat Rankin don't own me, and I don't have to work for him if I don't want to. There ain't another girl in this town can run this board and you know it. And Mr. Barrows will find it out, too. He'll want me back here, and he'll have one nice little time getting me."

"You don't tell me that Pat Rankin has sold the telephone exchange. Well, I never," came suddenly into Kitty's ear.

"What do you think of that," said Kitty to Frank. "I had that key open and Old Mrs. Stokes heard every word I said." And thus the telephone was the means of advertising the news that Pat Rankin had sold the Craneville exchange.

(To be continued.)

Fantastic but Useful.

Passengers and visitors on the mammoth new German steamship Imperator were much impressed by a tremendous gray German war eagle, carrying a gold crown on its head and a great golden sphere clutched in its talons, perched upon the bow of the big vessel, says a writer in the Bell Telephone News.

The figure is useful as well as ornamental and symbolic. Inside its ample body is a seat for the lookout, who peers through two small glass windows in the bird's breast. Every hour of the day and night, a man is stationed there. He communicates with the bridge by telephone. It is both a picturesque and comfortable station for a lookout who has to spend so much time there.

The great liner is equipped with a complete telephone system connecting every corner.

Ask Dissolution of National Company.

Cyrus Huling has filed suit in the United States court at Wheeling, W. Va., asking that the National Telephone Co. of West Virginia be dissolved and its property sold. Mr. Huling represents that he owns all except $100,000 of the company's stock and that he is a large creditor; that the debts of the company amount to $1,000,000 and that it is losing money at the rate of $17,000 a year.

Methods for Encouraging Efficiency in Work of Employes

Means Employed to Promote Spirit of Fellowship—Value of Interesting Employes in Work—Description of Merit System for Operators Which May be Extended to Other Employes—Paper Presented at Annual Meeting of North Dakota Association

By C. H. Coar

Efficiency means the production of results and, in a scientific way, the term is used to compare effort with accomplishment or input with output. When it is considered that the human element is, to a large extent, directly concerned in the production of results, it follows that any systematic inquiry, prompted in view of accomplishing efficiency, must be based to a large extent on the worker or employe.

Various Names for Efficiency Methods.

Scientific management, efficiency engineering and factory organization, are modern terms used in a general way to designate studies or arrangements tending to accomplish efficient operation and production.

In all large modern manufacturing organizations, every endeavor has been put forth by specialists in arranging the buildings and placing the machinery so that lost motion or unnecessary movements are reduced to a minimum. No doubt studies of this kind are largely responsible for the interest shown during recent years in methods tending to create efficient employes. In some organizations, motion studies have been made of the different operations performed by the workers in their various occupations and all unnecessary movements have been eliminated, to a large extent.

Time factors have been introduced and merit systems installed which provide certain standardized costs for definite operations, or results. In the preliminary to all thorough studies of this kind, a very careful analysis is made of all the factors entering into the employe's life, such for instance as, his food, clothes, surroundings, opportunity for study, entertainment, etc. There is ample evidence that studies of this kind, in the surroundings and conveniences of the modern factory, pay.

Every effort is put forth in all large organizations to instill in the mind of each employe, the necessity of co-operation and of generally looking upon the business as though it were his own. Heretofore, large companies have been seriously handicapped by the indifference and lack of interest shown by many of the employes, and in this respect the officers of the companies have been largely to blame. The owner or boss in the smaller establishment is usually acquainted with the peculiarities of his workmen; he often knows their families and sometimes their trouble. Now knowledge and intimacy of this kind have certain undesirable features but, taken as a whole, they are essential. Large companies have therefore recently endeavored in various ways to cultivate the spirit of fellowship, found in the smaller shops, through house publications, social clubs, benefit societies, and other forms of welfare work.

Telephone companies have not been backward in availing themselves of the benefits to be derived in this way and, in all large exchanges, organized staffs exist for the purpose of looking after the welfare of the employes. In addition to providing pleasant surroundings, various methods have been adopted by telephone companies to create satisfied and efficient employes and the purpose of this paper is to offer some explanation concerning one of them.

An organization of scattered employes presents many problems in this respect and particularly so in the telephone business, where comparatively low-priced employes have considerable responsibility. By this is meant, for example, the chief operator in a small exchange who is sole representative of the company for which she works. Circumstances often prevent frequent trips to points of this kind by company officers, and the internal business is therefore largely handled by correspondence.

Disgressing for a moment, in this connection it might be well to say that there are far too many hastily worded letters going out from the general offices to employes of this kind. Wrong impressions are conveyed, apprehensions aroused, and antagonism fostered until that biggest bugbear "discouragement" breaks up all semblance of co-operation and efficiency. Letter writing is an art and loosely written internal correspondence is the cause of a large loss today.

Political economy proposes to tell how profits and burdens are actually shared, but ethics should guide us in showing how they should be shared. Industry should have its fruits as well as its sacrifices and every worker should experience the double effect of industry. First he is burdened, and then he should be rewarded.

Inquiry reveals that no small measure of Andrew Carnegie's success was due to the fact that he recognized the importance of keeping his employes interested in their work. Employes of ability were given an interest in the firm and in reality became partners of Mr. Carnegie. Needless to say, these men were interested in their own success, hence Mr. Carnegie and his companies prospered.

It has been found to be a fundamental fact that the man of superior ability cannot accumulate for himself without giving to his employes the opportunity to participate also. Thus we are led to believe that one of the secrets of success in business, and particularly in manufacturing, is a liberal division of profits among the employes who help to make them. It is self-evident that brains, industry, and ability can be encouraged and cultivated, but they will never be exercised to their fullest extent by dissatisfied or discouraged employes.

Standard Wage Scale Versus a Bonus System.

It is generally recognized that the standard wage scale is unfair in many ways, for it places the inefficient on the same plane with the efficient. These differences are soon noticed by employes and are bound to cause more or less dissatisfaction. Good wages on a flat rate do not always accomplish desired results, for it is a failing of the human race to be more or less ungrateful and there is apt to be some lagging because of the thought that the limit is reached. A system of wage that keeps the "voltage" up all the time is more to be desired. Hence any bonus or merit scheme is worthy of serious consideration.

Sliding scales and piece work are direct methods of permitting the employe to participate in the results of increased efforts. It is used to a great extent by manufacturing concerns, but is not suited to the needs of telephone organizations. Even in manufacturing concerns, it has been found advantageous to modify it in such a way that the worker gets a certain stated salary, regardless of output.

and an extra sum for any amount exceeding that set as a fair day's output; that is, a sliding arrangement with a minimum wage sufficient for a fair living. In the opinion of the writer, this method is far more satisfactory, for under it the employe has an assurance of a certain sum which does away with some of the uncertainty that otherwise must exist.

This plan can be adopted by telephone companies under a number of different arrangements, depending on the duties of the employes concerned. That is to say, a different detailed arrangement would of course be necessary for the employes of the plant, commercial, or traffic departments.

A Merit System for Operators.

It has been the good fortune of the writer to help inaugurate a merit system in the company with which he is connected and it may be of interest to know something of the plan adopted. The merit system is intended for operators only at the present time, but it is expected to gradually increase its scope, until practically every employe will participate in its advantages.

The operators concerned are employed in various sized exchanges, mostly small and, in addition to their operating duties, are often required to keep the books, do the collecting, and otherwise act as the company's local representative. This is a customary arrangement in the smaller exchanges. In this plan, the various exchanges are grouped and classed as *A, B, C, D,* etc., exchanges, the exchanges in each group being selected so far as is practicable on account of their similarity in amount of traffic, number of operators, hours, reports, line, and telephones.

Suitable cash prizes are given each month to each group. The prizes are proportioned in view of making proper allowance for the work involved and the help employed at the different exchanges. For example, a two-operator, 50-line exchange will not participate in as large a prize as will two operators in a 150-line exchange, because the girls in the smaller exchange do not have the same amount of work to do. The prizes go to the exchange and not to individuals, but they are divided among the operators of the exchange, pro rata according to the salaries. It is therefore necessary for all employes in any exchange to work with a common view in mind, as each employe participates in the prize and her neglect or attention to business, figures in the total results accordingly. This results in creating a common interest among the employes of the exchange.

In the system the daily routine is classified and listed under certain heads as follows:

Care of Property: Condition of offices, fixtures and apparatus, taking into consideration repairs needed thereon.

Care of Business: Complaints received or given; promptness in answering correspondence; forwarding all kinds of reports, time sheets, etc; and installations and cut-outs.

Condition of Reports: Local and long distance accounts; billing; toll tickets, as to accuracy, neatness, and percentage of errors to total; and general office attention required on account of mistakes or lack of information.

Traffic Standing: Results of local and long distance service; tests made by chief operator or others; and over time and cancellation percentage.

Collections: Promptness; amount; and percentage of collected total.

Examinations: An average of the standing of all operators in the exchange on an examination made by the chief operator on questions pertaining to the rules, routings, bulletins, etc.

Expense for Sundries: Amount spent for miscellaneous care of office, brooms, oil, matches, mops, etc.

These classifications could be elaborated upon or condensed to suit the ideas of any company.

For the purpose of determining the standing of the different exchanges, the following general classified duties are allowed a certain percentage of 1,000, and are later divided into detailed duties, each having its percentage.

General Classification	Percentage
Care of property	75
Care of business	100
Condition of reports	175
Traffic standing	200
Collections	200
Examinations	175
Expense for sundries	75
Total	1,000

The various departments tabulate the demerits against the different exchange as they check over the work. At the end of the month the final standing is ascertained and the prizes awarded accordingly.

It is of course essential to divide the general classification into units and to proportion to such units a proper percentage for demerits, bearing in mind to allow for the more important duties, the largest percentage. However, the demerits should not be made so large that the number charged against any particular classification will ordinarily not be more than the total percentage allotted to such classification. The demerits can thus be arranged in such a way as to bring particular stress on any certain duties which are in need of special attention.

When the standings are ascertained each month, a circular is forwarded to each exchange showing the standing of all exchanges. A personal letter accompanies the circular, complimenting for encouraging the force at the exchange addressed. Each member of the force is thus acquainted with the standing of all the exchanges and with the deficiency of her own exchange, if there be any.

Success of Merit System.

The success of a system of this kind necessarily depends to a great extent upon the employes of the general offices, who are responsible for uniform checking of the demerits, as they should be checked without the slightest semblance of partiality.

This arrangement may appear somewhat unscientific or cumbersome but it has the redeeming feature that it will tend to keep up interest and give to those who put forth a little extra effort, a reward that is justly due.

It has also been found mutually beneficial to give the operators, the four months' rental of any subscriber they secure on the company's contracts. The girls know who the "spongers" are, and this makes it an object to get after them.

Readers will possibly wonder why all this concerns the operator and not other employes. The management started with the operator because it was believed that as a rule her services are underestimated and need a more general reconstructing as far as salary is concerned. The company hopes to be able to inaugurate a similar system for other employes.

Interstate Company Declared Independent.

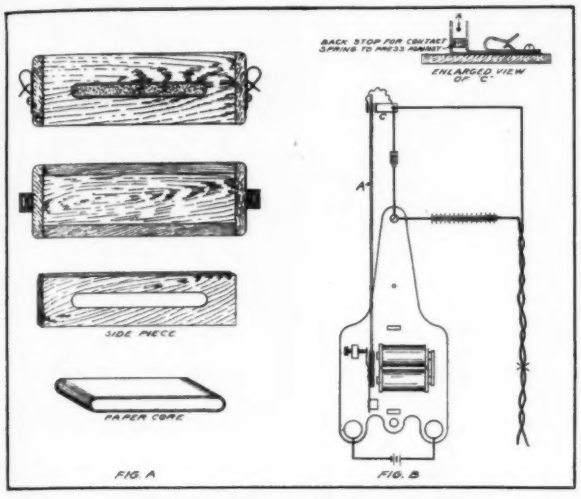
Vice-President Barber of the Interstate Independent Telegraph & Telephone Co. is quoted by a Joliet reporter as stating "that neither the Chicago nor any other company owns the Interstate telephone company and that the Interstate company will always be owned by the Interstate company, and that the company will at no time be merged, consolidated or sold to a competing company. The state and federal laws prevent, even should the owners desire."

Practical Subjects—Letters and Discussions

Home Made Fault Finder—Results of Salt Fogs.

I am sending you a sketch of a cheap fault finder which anyone can make on short notice. I had to do it, as the electric light boys shot a 2,200-volt current into our cable.

This coil as shown by the sketch, weighs a little less than a quarter of a pound and was made of cigar box wood, glued



Details of Homemade Fault Finder.

together. The core is of No. 28 soft iron wire, such as is used by the florists. The wires are held in place by a paper wrapper, forming a tube that is glued to the side pieces to form the spool. Wire from an old ringer coil was wound on the core until the resistance was about 150 ohms. I have made several of these coils and no two of them have the same resistance, but they all work with the ordinary head receiver.

The vibrator was made from an electric bell. A long piece of stiff iron wire was soldered to the armature, while the make and break contact was placed near the end with a condenser across the contact to reduce the sparking.

The loudness of the tone will depend upon the amount of battery used. I have used 15 to 20 dry cells with good results.

I am also sending by parcel post, one of the pieces of insulated wire that has been in use for a year. It was installed according to the scheme mentioned in my letter in TELEPHONY of May 4, 1912, page 564. Please note how the wire has been eaten at the end of the insulation. You can also see where the wire was tied to the insulator and how much it extended each side of the glass. It only requires a little time for the salt to form a path over the outside of the insulation, even to the glass, pin, crossarm and pole.

Yes, the positive side is grounded, for I have just tried it to be sure.

C. E. Nicholas, Manager.
Redondo Beach, Calif. Redondo Home Telephone Co.

P. S.—I think a good solution for this can be had at any good laundry, where the wringer is only one man-power, and to contract for this work twice a year.

EDITOR'S NOTE: The article to which Mr. Nicholas refers, told of the trouble caused by damp salt air on copper wire circuits and the many short circuits at night when the salt fogs arose. Wires frequently broke due to the corrosive action set up at the points where current escaped from the line wires, which were operated in connection with common battery. The trouble occurred at the insulators and to overcome it, triple braided weatherproof wire, three feet long, was used at the insulators. The tie, insulator, line wire and joints at the insulator were then painted with an insulating paint.

The samples sent by Mr. Nicholas are corroded to such an extent as to cause the copper wire to break. The insulation of the weatherproof wire was in fairly good condition except that on the part near the insulator, the outer braiding has begun to show the effects of the exposure to the salt fogs.

Letters from a Chief Operator to an Operator.

[EDITOR'S NOTE: This is one of a series of original letters written by a chief operator to a member of her force, and published in The Southern Telephone News.]

Monday: Margaret, dear, I used to wish that I did not know you so well, for it seemed that you expected me to give you more liberty and show you special favors because we were friends at school. You are a telephone operator—one of my operators and one of my friends, but you are by no means the kind of an operator I want you to be, so I am going to try to help you make yourself over. If I did not know you as well as I do, I do not believe I could say the things to you that I want to. I am going to try to make you understand some things about your work of which you have never thought; and to make you realize that there is more in it than mere physical action.

Your work should employ your whole mind. It should tire your brain as well as your body. If it doesn't, that is a pretty sure sign you are not doing your best for the company and the public. Do not think because you know how to establish a connection and know what phrases to use, that you are an operator. It means far more than that to be a real operator. You have been sitting at the switchboard almost every day for more than two years, and yet really, you are not an operator, you are just being called one. You can and must be a real operator and stop pretending.

Margaret, it seems that you can not realize how important your position is. You must remember the drops are not merely to attract your attention but that one of the company's patrons is waiting for you to respond. It is impolite to keep any one waiting and besides the company is paying you to serve its customers.

Do you never expect to rise above being just an ordinary operator? You can't, if you do not take a real interest in your work, which you do not seem to do. It does not seem that your mistakes impress you in any way whatsoever. Each one should make you strive harder to prevent a recurrence. Do not be satisfied with "I am doing the best I can," but just keep trying to do better. You are by no means a perfect operator and there is much room for improvement.

You can become a good operator if you will only put real life and interest into your work. This is your opportunity to rise to something better. Are you not going to grasp it before it is too late? You have often complained of the monotony and tiresomeness of the work. You are always saying "it's the daily round over and over again." You never think about the switchboard being more than just a piece of machinery. But let us think about it in an unusual way. Let us call the switchboard our "friend-maker."

It is a wonderful thing, full of real life and you come each day and sit right in its very heart and you are its ruler. It has thousands of long, tiny arms reaching out all over the country, compelling people to test your patience and kindness, your loyalty and alertness. Margaret! You haven't stood the test! You have angered your "friend-maker" and it is punishing you by not giving you any friends. It will also punish the great body of men who own it, if you are allowed to

continue to disturb the peace of its great heart. You are letting your knowledge about the work grow less each day. The way you go about it reminds one of a dream.

Wake up! Think about your work! Study the instructions. Read them over and over, backwards and forwards, until you know them, and then follow them. Be an expert operator. To be able to give good service, it is just as important for you to know each detail of the instructions just as thoroughly as you would have to know each note in a piece of music to be able to play it perfectly.

We can go back to the switchboard again now, and learn another beautiful thing about it. It is like a great musical instrument and, when played upon by a skilled operator, it gives forth a most wonderful music. Its notes are human gratitude, kindness, love and content. On the other hand, if the operator is not skillful, its music is just as unpleasant and just as miserable as the other is beautiful. I know your work is a burden to you, for you are continually blaming some one for the hard time you have. You are the one to be blamed for it. You have the power to make your work pleasant or unpleasant, just as you wish. Of course, you will strike some people who are unkind and ungrateful to you, but I am glad that it is so, for then you have an opportunity to prove what you really are.

The telephone business is growing, Margaret. If one part of it grows, the whole part must grow, of course, and isn't an operator one thing that a telephone company can never do without? And as the business gets bigger and better, won't the operator have to be bigger and better, too? The world can not get along without some woman to hold your place. There isn't a man who can do as well as you should. There may sometime be born someone who will be able to make a mechanical telephone operator, but that will be away in the years when you and I are forgotten. We are expected to fill the place *now*, so let us do the very best that we can.

There is still another side to your work. Did you ever think about the moral lessons you can learn from the instructions? They teach kindness and courtesy all the way through. If you will only listen to your teachers and do the things which the company expects you to do, you will soon become a kind, even-tempered, courteous young woman.

When you take your place at the switchboard, start with a faithful determination to do your best just for one day. Think about your work as you go along. See how many little improvements you can make in handling the cords and keys. Notice how you speak. Be careful to use the proper phrase at the proper time and endeavor to make each word distinct. Be sure the subscriber hears you, for nothing is more irritating than to be in doubt as to what the operator is trying to say. Try to improve your speed; learn to make the seconds count, for to the busy, impatient subscriber seconds seem hours and minutes seem ages. Notice the many worried and tired voices you hear. If you are cross or impatient, it only makes them worse. If you had their burdens to bear, you would probably seem as unkind as they do. Speak kindly. Remember, you can do more good by being good than any other way.

Now, do not make the mistake of supposing that "well doing," will require you to be on the lookout for some extra occasion. But endeavor to make each patron with whom you come in contact feel that you are doing the very best that can be done. Try to avoid making a mistake just for one day and, above all, be kind and courteous. Remember, those who sow courtesy, reap friendship, and those who plant kindness, reap love. True greatness consists in being great in little things, for the greatest works are accomplished little by little.

Try to be a great operator, Margaret, dear, and when the day is over and you sit down to think about what you have done, you will have a feeling of such peaceful satisfaction and happiness that you will be eager for the morning to come and let you take your place in the heart of your "friend-maker" and help the world go round.

Telephone Line On Same Tower with 60,000-Volt Circuits.

A recent issue of the Electrical World contained a description of the 60,000-volt steel tower line construction of the Southern California Edison Co., which operates extensively in southern California. The Southern California Edison Co., in line with the practice of most operating power companies, has its own private telephone line, interconnecting all of the generating stations and the principal substations.

Although the telephone line is primarily intended for use in operating the system, for which use it would fulfil its purpose in any location, it must be taken into consideration that there are long stretches of transmission line which are not adjacent to any public highway. Accordingly it was decided to erect the telephone circuit upon the same towers with the transmission line, so that the patrolmen could readily report the location of trouble and likewise report clearance promptly after the trouble had been remedied. In general, one telephone pole is used in each span between the steel towers, it being the intention to limit the length of the telephone spans to 350 feet.

There were many spans, however, wherein it was impracticable to locate this intermediate pole, and the telephone wire was required to make the same span as the transmission cables. The wire adopted for the telephone system was No. 6 B. & S. gage Phono-electric wire, and in order to minimize the induction on the line, a telephone transposition was made at every tower. Dead-end construction was adopted for the towers, using Thomas suspension insulator No. 1074, with 4-in. petticoat.

The insulator is secured to the steel cross arm by the use of an "S" hook. The Phono-electric wire is made up by the use of a special two-bolt, cast-iron clamp, a thimble being used where the wire hooks to the insulator. Weatherproof wire is used for the transposition, and the joint between the Phono-electric wire and the weatherproof copper wire is soldered. A single cross arm was used on straight-line towers and sight deflection angles, and two cross arms, one on either face of the tower, were used where angles were so great as to cause interference with the cross-bracing of the tower. For that part of the line between the Los Angeles No. 3 station and the Newmark substation there are three telephone circuits; between the Newmark and Colton substations, there are two; and between Newmark substation and the Long Beach steam plant there is one circuit.

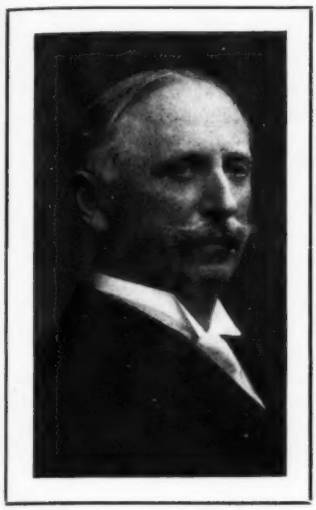
The Helpful Telephone.

A young woman carrying a small child got onto an express at South Norwalk, Conn., recently, bound for New York, says a writer in The Telephone Bulletin. A passenger seated behind her noticed that she became extremely confused and was searching for something in a most excited manner. He learned the cause of her confusion when the conductor came in and she anxiously inquired if the train stopped at Stamford, explaining that she was bound for Norfolk, Va., and had left her ticket, money and handbag at her home in Norwalk.

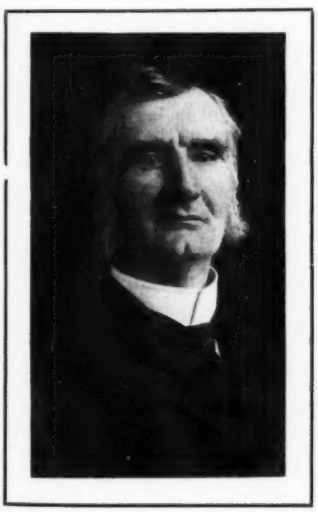
She was absolutely at a loss as to what she was to do, so the passenger left the train with her at Stamford, where he put a call in for her residence in Norwalk. Sure enough, she had left the bag, ticket and money there as she thought. It was sent down to the train and brought by the conductor to Stamford, so that, thanks to the kindness of a fellow passenger who knew the value of telephone service in an emergency and how to take advantage of it, she was able to make connections with her train south as she had planned.

A Quartet of Men Prominent in the Telephone Field

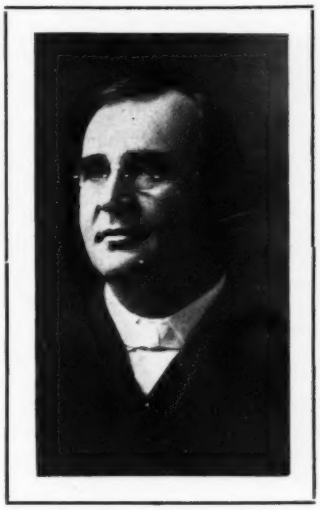
CHARLES WILLIAM HOLTZER, president of the Holtzer-Cabot Electric Co., Brookline, Mass., was born in Karlsruhe, Germany, in August, 1848, and was educated in the Institute La Fontaine. After making some mathematical instruments, and doing work on printing telegraph instruments, he established himself in the electrical business in 1875, and about 1878 made some telephone experiments for Clarence J. Blake, aurist. In 1880, he established the Brookline telephone exchange, with the switchboard in his factory office, serving 12 subscribers. The subscribers now number 3,000. In 1883 he relinquished his interest in the Suburban Telephone Co., later the New England Telephone & Telegraph Co. He purchased, in 1889, the stock and machinery previously belonging to Charles William, Jr., in whose shop the telephone had its birth, and in the same year incorporated the company of which he has since continued as president. Mr. Holtzer is a member of the A. I. E. E., Electrotechnischer Verein, Germany, and various clubs. He is a mason.



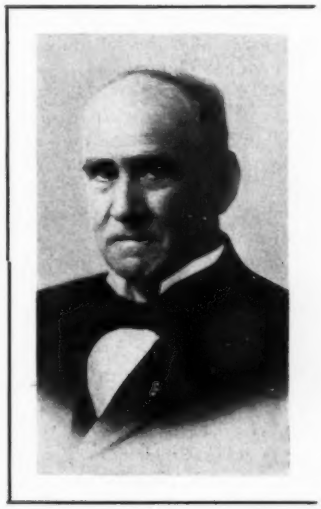
DR. M. E. CHURCH, of Falls Church, Va., president and general manager of the Falls Church Telephone & Telegraph Co., and general manager of the Leesburgh Telephone Co., was born in Vermont, but has lived in Virginia nearly 34 years and at Falls Church 27 years, where he was a druggist for 12 years. In 1888 he and his associates built a telephone line to Georgetown, about six miles, establishing first connection with Washington, D. C., from northern Virginia. In 1896 he installed a small switchboard in his drug store for local service. In 1898 he build a line to serve the 25,000 Spanish War troops at Camp Alger, and in 1900 entered into the first sub-license contract in Virginia with the Southern Bell Telephone Co., chartering his company as the Falls Church Telephone and Telegraph Co. About the same time the Northern Virginia Telephone Co. and a little later the Herndon & Leesburg Telephone Co. were organized. In 1902 Mr. Church disposed of his drug business and merged the two foregoing companies with his own. In 1908 he organized the Leesburg Telephone Co.



J. A. HUDSON, president and general manager of the Columbia Telephone Co., Columbia, Mo., was born on a farm in Missouri in 1853, and was educated in the public schools. He was engaged for 25 years in the newspaper business and is a past president and now a member of the Missouri Press Association. He entered the telephone business in 1897 by buying a small exchange at Columbia, having 85 or 90 telephones. He has since expended much energy in building up an extensive system, the company now having about 2,000 telephones with extensive toll line connections. Mr. Hudson was president of the first telephone association in Missouri and has been a member ever since. He has been a familiar figure at the conventions of the national association and was chairman of the committee that recommended and secured the adoption of the shield as the present emblem. Mr. Hudson is the author of the special road laws in Missouri under which most of the roads are being made. He is president of the Columbia Road Commission, the Columbia Commercial Club and the Columbia Auto Club.



DR. I. A. LUMPKIN, president of the Coles County Telephone & Telegraph Co., Mattoon, Ill., was born in Miller county, Mo., in June, 1843, and was educated in a log school house in the wilds of Missouri. He was a practicing dentist for 45 years. He entered the telephone business about 1890, when he organized the Mattoon Telephone Co., built the system, and became its first president. About 1895 he helped to organize and build the plant of the Coles County Telephone Co., and was the president of both companies until their consolidation, about 1898, the company being known as the Coles County Telephone & Telegraph Co., of which he was made president. Dr. Lumpkin was president of the Illinois State Telephone Association for seven years. He organized the Tri-State Association and was its first vice-president. He became a member and one of the executive committee of the National association at the time of its organization. He is a life member of the Illinois State Dental Association, a Knight Templar, a Knight of Pythias, an Elk and present president of the Illinois Elks Association.



Proceedings Before Commissions, Courts and Councils

Discussions and Rulings of State Bodies Having Supervision of Telephone Companies, Decisions of Courts in Matters Affecting Public Relations of Utilities, and Actions of City Councils Bearing Upon Franchises, Rates and Service

Paducah, Ky., Formally Refuses to Enact Ordinance.

In deference to a recent decision of the United States Supreme Court the city council of Paducah, Ky., has taken action refusing to exercise the option to enact an ordinance embodying the terms of a contract entered into with the East Tennessee Telephone Co. respecting telephone service. The supreme court held that it was necessary for the city, under an injunction ruling of the United States Circuit Court for the western district of Kentucky, either to enact the ordinance, permit the telephone company to operate as at present without interference, or to formally take action refusing to exercise the option to enact the ordinance, which latter action would open the way for the issues between the telephone company and the city to be heard by the supreme court on their merits, on the city's appeal from the United States Circuit Court.

Pennsylvania Commission Holds Rate Hearing.

The Public Service Commission of Pennsylvania held a hearing last week at Harrisburg at which consideration was given the tentative schedule of maximum telephone rates promulgated by the old railroad commission last April. About 100 Independent telephone companies were represented and made protest against the proposed rates, which, it was declared, would put them out of business. A number of farmers' mutual companies were also represented.

At a preliminary meeting of the representatives of the telephone companies it was found impossible to agree upon a joint statement to be made to the commission that would fairly represent all interests. At the hearing the various speakers declared it to be impossible to fix maximum rates for the entire state, contending that the expenses of operation, construction of lines, atmospheric conditions, local conditions—requiring conduits in some instances and not in others—were so different that unless the maximum were made high the schedule would work a hardship on the Independent companies.

Ex-Congressman P. M. Speer, representing Pittsburgh, Johnstown and Erie companies, said that it was impossible to fix any uniform rate that would affect communities alike in population, for the reason that conditions in each differed. To carry out the tentative schedules of the railroad commission, he said, would mean the extinction of the Independent lines.

Commissioner Pennypacker asked if maximum rates would work a hardship, and Mr. Speer replied that in some cases they would. He said that the method pursued by the Interstate Commerce Commission in deciding rates would be the proper one for the Pennsylvania commission to follow. Each telephone company should file and make public its rates and abide by these rates until after complaint had been made to the commission and new rates had been established as the result of evidence taken and facts learned. Each case, he said, should be considered individually and solely on its own merits.

Mr. Speer contended that the flat rate is what the subscribers want, and to eliminate the unlimited flat rate would wipe out some of the companies. To make maximum rates, he added, would be to discourage competition.

"Do you think it would ever be possible to establish uniform rates?" inquired ex-Governor Pennypacker.

"Probably never," replied Mr. Speer to this question.

Walter B. Saul, Philadelphia, representing Melrose telephone subscribers, said he was appearing for the purpose of discussing zone rates. He explained that the rates in his district had been arbitrarily changed from one zone to another and that the rates had jumped 50 to 75 per cent. in consequence. The commission did not seem disposed to go into that phase of the question, and Mr. Saul was told he would be given an opportunity to speak at a later hearing.

Henry M. Tracy, receiver of the Cumberland Valley company, told how few of the Independent concerns are paying dividends. Of the $53,000,000 invested in Independent lines in this state, he said, the earnings are only $500,000 annually. The entire net revenue of his company last year, he said, was $24,000, or less than one-half the interest on the bonded indebtedness of $1,500,000. If the proposed schedule of prices went into effect, he continued, this surplus would be wiped out in a year. Outside the larger cities, he said, no Independent company is getting a sufficient return on its investment.

William H. Keller, of Lancaster, attorney for the United company, said that his company operates 67 exchanges, and that in all except seven the proposed schedule would reduce the rates from $1 to $7 annually and that would mean $35,000 to the company. The new woman's labor law necessitated, he said, the employment of three exchange girls in exchanges where there were less than 200 telephone connections, for one girl cannot operate more than 200 and cannot work more than eight hours a day. Of the exchanges of his company, 35 had less than 100 telephone connections. The suggested rates, he concluded, would, if carried out, mean a reduction to $25,000 on an investment of $2,000,000.

H. L. Robinson, of the Tri-State company and others pointed out that the Independent lines had to have something to offer to subscribers which the Bell company did not offer. The Bell company, he said, had the long distance service; the Independents offered free service to all communities in counties in which they did business. He said subscribers to Independent lines were obtained because of this free service, and if it were eliminated by new ratings or service rates, the subscribers would take the Bell service because of its long distance facilities.

John S. Water, counsel for the Tri-State company, declared that only four Independent companies had declared dividends honestly earned. He suggested that the commission take no action in the matter for a year; and meanwhile the Independent companies would gather data. He added that the commission could continue gathering facts through individual cases that come before it. Commissioner Brecht said the railroad commission had been hearing telephone rate and alleged discrimination cases for four or five years, and that the tentative schedule was the result of this knowledge.

J. C. Jones, of the Keystone Telephone Co., of Philadelphia, cautioned the commission to go slow. He said: "You are attempting the impossible. You are beginning by making recommendations instead of starting an investigation. Because of the divergent circumstances attending the telephone business, there should be a thorough study made of individual complaints." Mr. Jones said the pro-

posed schedules would take off $80,000 of the revenues of his company.

F. J. Osgood, the Northeastern company formed by farmers and others in Susquehanna and adjoining counties, said that arbitrary rates would ruin his company, which furnishes service for $1 a month to general subscribers and gives it free to stockholders.

Commissioner Ewing, chairman of the commission, and Commissioner Johnson were absent. Commissioner Wallace, of Erie, presided at the meeting and expressed his regret that the Bell Telephone company was not represented officially. He said that notice would be given of the next meeting, when the telephone rates would again be taken up.

Maryland Commission Orders Toll Reduction.

The Maryland Public Service Commission has passed an order reducing the toll rate of the Chesapeake & Potomac (Bell) Telephone Co. between Baltimore and Ellicott City from 10 to 5 cents, effective on September 1. This decision is the result of a fight made by State Senator Edward W. Hammond.

Chairman Laird, of the commission, in a comprehensive opinion discussed the case in all its details and finds in effect that, as the people of Baltimore county are served through the exchanges of Pikesville and Sparrows Point for a 5-cent toll charge, the people of Howard county should not be charged 10 cents for similar service through the Ellicott City exchange.

"The Chesapeake and Potomac Telephone Co," the opinion states, "has failed to show any sufficient justification for its adoption of a radius to and from Baltimore city which results in the arbitrary exclusion of Ellicott City from the zone created, and, to the contrary, the commission is of the opinion that the Ellicott City patrons of the company are entitled to telephone service to and from Baltimore city at the same rate of charge as are its patrons located on the Pikesville, Towson and Sparrows Point exchanges and other exchanges within the 5-cent zone.

"These conclusions are based wholly on the circumstances surrounding this particular situation, embracing, as such circumstances do, the nature and character of the company's service through its Ellicott City exchange and the relation of Ellicott City itself to Baltimore. This case cannot, therefore, be considered as a precedent in cases where different conditions prevail."

Work of Baltimore Telephone Protective Association.

H. Findlay French and Ogle Marbury, counsel for the Telephone Protective Association, of Baltimore, Md., recently conferred with Osborne I. Yellott, people's counsel before the Public Service Commission, to discuss the employment of an expert to probe the affairs of the Chesapeake & Potomac Telephone Co. The employment of an expert to draw up a series of questions relative to a physical valuation of the company's property in Maryland was authorized by the commission last month.

Messrs. French and Marbury have examined the agreements and contracts, more than 70 in number, under which the telephone company is operated and which were filed with the commission several weeks ago. Much of the material was found to be valueless, so far as its bearing on rates is concerned, but among other things, they say that they found proof of the "concealed dividend" which was charged by the association in the previous rate case.

Interstate Commission Has Chesapeake & Potomac Brief.

The Chesapeake & Potomac (Bell) Telephone Co. has filed a brief with the Interstate Commerce Commission in answer to the complaint of D. E. Stephen, of Bethesda, Md., who is seeking to compel the company to give him direct line telephone connection with the Cleveland exchange in Washington, D. C. He now has connection only with the Bethesda exchange and has to pay toll rates to telephones in Washington.

The telephone company, in its brief, makes the point that in the operation of a system it is necessary to have certain boundaries, and that in the application of such a system it is unavoidable that some individual subscribers will, at times, find themselves inconvenienced and dissatisfied with the standard rules of service as applied to their particular conditions.

It is pointed out by the company that in laying out the system it has been found that a local telephone service in which all the telephones in a certain zone are connected with an exchange centered in the area, is the only feasible one.

It is further stated that if a boundary line has been properly run in accordance with the reasonable general requirements of the system, the expedient of attempting to move the line for the relief of an individual will inevitably result in shifting a similar or greater inconvenience upon others. One of the controlling considerations in the original fixing of the boundary lines is to place the divisions with due regard to the other essentials of the problem, where such causes of dissatisfaction will be reduced to a minimum. There is no hope of removing them altogether. The present case is declared to be a plain illustration of the personal inconvenience which may be caused to a few individuals by the establishment of a local area.

The company further states that it does not appear that any material injury or inconvenience has been caused to the complainant, by the establishment of the Bethesda area as it now exists. The complainant, the brief continues, by reason of his personal interest, has more use for the toll traffic than for the local traffic, and, therefore, he is dissatisfied with the general plan as applied to his conditions. "He is unwilling to take it as a toll service and pay for it as a toll service. He demands a special plan with different and more favorable terms than are comprised in the system which must be provided and supported for the service of the general body of subscribers."

The brief states that while the company is firmly convinced, from experience and study of the question, that this special demand must be restricted for the protection and upbuilding of the system of service most necessary and useful to the general body of subscribers, it has not felt justified in utterly refusing to comply with the demand. The respondent, therefore, had adopted and offered a rule of practice under which a subscriber may get special rates into a foreign exchange upon terms not unduly burdensome under the circumstances, yet, as compared with standard rates of regular subscribers, not distinctly favorable or preferential to the special subscriber.

The respondent, in conclusion, contends that its decision in refusing to comply with the complainant's demands ought not to be set aside by the commission "except upon overwhelming proof that such action is necessary in the interests of the entire community to be served by the particular local exchange areas involved" and that the complaint should be dismissed.

Wealthy Duck Hunters Stirred by Rate Increase.

Wealthy New York and Baltimore sportsmen who enjoy ducking at Grace's Quarter on the Gunpowder river are stirred by a recent notice of the Chesapeake & Potomac Telephone Co. of Baltimore, Mo., that the company will shortly change the status of the telephone at that place

from an unlimited one, costing $150 a year, to a 600-call telephone at $775 annually. At the new rate each message to Baltimore—a distance of about 15 miles—will cost about $1.10.

The complaint has been placed in the hands of counsel for the Telephone Protective Association of Baltimore, who are formulating a complaint to the Maryland Public Service Commission. The case is a peculiar one.

The Grace's Quarter Ducking Club and Carroll Island Co., which own the land on which the club is situated, built a private telephone line to Baltimore about 15 years ago. The members of the club are bankers and business men, and they wished, while enjoying the sport of bagging canvasbacks and redheads, to be able to keep in touch with their business affairs and the stock market.

In 1902 the Carroll Island Co. made an agreement with the Chesapeake & Potomac company by which the latter took over the private line, which had cost some $7,000 to build, and agreed to maintain and operate it for five years and to give unlimited service at the rate to be $150 annually. The five years expired, and the contract was renewed each year until 1913. Recently the Chesapeake & Potomac company notified the Carroll Island Co. that after this year the charge would be $775 for 600 calls to Baltimore.

The telephone company contends that the cost of maintaining the private line is great, and that the increase is necessary. It is said, however, that much of the business over the line is long distance calls to New York and other places, from which the telephone company reaps a rich reward.

New York Decision on Summer Service Rates.

In a decision written by Commissioner Decker, the New York Public Service Commission has ordered the New York Telephone Co. to desist from charging $12.75 for three months' telephone service at Farley's point, near Union Springs, N. Y., where C. F. Rattigan, complainant in this hearing, and other subscribers have summer cottages. The company is permitted to charge for short term service at this point not more than $1.25 a month, plus an arbitrary for connection and disconnection and other expenses of not to exceed $5.

The annual rate of the company for service is $15. For the past three years the complainant, Rattigan, had paid for summer service at the rate of $1.25 a month, the proportion of the annual charge, plus the billed charge for installing the telephone and disconnecting the instrument. His bill in 1910 was as follows: Installing $1.73, removing $0.66, total $2.39, with four months service that year, or an aggregate of $8.39. In 1911, the charge for installing was $3.18, removing $0.97, with three months service, or an aggregate of $7.90. In 1912 the charge for installing was $2.57, telephone not removed, and with three months service, the total cost was $6.32.

The telephone remained in the complainant's cottage during last winter and the company expressed a willingness to charge for this season upon the old basis but declined to extend that concession to other persons in like situation at Farley's point. The charge under the company's tariffs this year for installing and removing fee and three months' service amounts to $12.75. The company informed the commission that it had averaged the cost of installing and disconnecting telephones throughout the state, and after taking into account all of the different items, including overhead costs, it reached an estimate of about $11 for each telephone installed and removed. The cost of connecting and disconnecting, respectively, was estimated as follows: For station wiring, $3.63, $0.87; for drop wire, $7.69, $0.90; for block wire, $4.15, $0.62. Included in these items were 20 per cent. on connection and 15 per cent. on disconnection for supervision.

The commission notes that these rates plainly refer to the initial installation and final disconnection including the necessary outside and inside wiring, and are not applicable to service which has been established and is continued from year to year. The commission holds that the charge of $12.75 for three months' service, in view of the charge of $15 for yearly service, is wholly disproportionate from any theory and is designed to discourage short term service requests. It is held that the telephone company, like the railroad company, must in serving the public accept the small and little paying business with the large and better paying traffic. It is held that an arbitrary of $5 plus the monthly charge of $1.25 would be fully compensatory and reasonable.

County Commissioners Have Meeting by Telephone.

The county commissioners of Madison county, Indiana, who are seven in number, and reside long distances apart, recently held a meeting by long distance telephone and passed an appropriation of $1,500. There was a demand for the appropriation to be made at once to pay the salary of a new county agent and as there was no other business to transact, the clerk called up the various members by telephone and had each hold the wire until all were ready. The appropriation measure was read and when votes were called for, a string of ayes responded and the appropriation unanimously carried. At least one editor of the state, however, has objected to this use of the telephone when it comes to voting public funds.

California Commission Makes Changes in Watts Service.

Some decided changes are to be made in the telephone service of Watts and Compton, towns near Los Angeles, Calif. The Railroad Commission has granted authority to the Pacific Telephone & Telegraph Co. to withdraw from the territory in and about Compton and has authorized the Consolidated Utilities Co. to withdraw its telephone service from the territory about Watts Station. An agreement will then be made between the two companies for better service for these towns. This will, it is claimed, do away with certain free switching between Watts and Compton and extending switching privileges between Watts and Compton and Los Angeles.

Topeka Operators Must Keep Mum on Fires.

The city commissioners of Topeka, Kan., are reported as considerably disturbed by a new rule of the Missouri & Kansas Telephone Co. in refusing to permit operators to give information over the telephone as to the whereabouts of fires. The girls were instructed to refer inquirers to the fire department. The department, however, maintains but one telephone, which, it is claimed by the city officials, should be kept free for departmental business in time of fire, and in any event is an inadequate source of information at such times.

State Telephone Line in Minnesota.

The completion of 30 miles of telephone line into the dense woods of Cook county, Minn., in the northern part of the state will be of incalculable value to the state and settlers in the matter of fire protection, according to the state forestry department officials.

The line extends to the Canadian border where it connects with the Dominion telephone system. Instruments have been placed in the homes of the few settlers in that region. The state now has 285 miles of telephone line in the forest region. The last legislature appropriated $25,000 for extension work.

A Day Spent With the Manager's Wife in a Small Town

Some of the Interesting and Amusing Experiences With Subscribers Both in the Town and the Country—Many of the Things Which Are Demanded of the Manager and His Wife and What Was Done About Them

By Mabel Graham Knipe

The manager's wife was sweeping her back porch at an unusually early hour, when her neighbor hailed her from her kitchen window: "Oh, you early bird! How are the worms this morning?"

"This poor bird is too sleepy to see a worm if it was right at her feet," wearily responded Mrs. Hastings. "I've been up since five o'clock," she added.

"For goodness sake! Some of the family sick?"

"No. A teamster called John at that hour to tell him, if he wanted his telephone rent, to meet him at the office within ten minutes and he'd pay him before he started out with his team for the day. Otherwise he didn't know when he could pay it."

"Did Mr. Hastings go down at that unearthly hour?"

"Certainly not. He told the man to send it by one of the children later in the day—a thing the man had evidently never thought of. But as we were all awake, we dressed and had a sunrise breakfast. John has gone now in the machine six miles out in the country to try to fix a telephone that has been out for several days. He couldn't spare any of the men from their town work, so went himself. Oh! there is our bell."

"Yes, this is Mrs. Hastings," she was saying a moment later, as she held the receiver to her ear.

"Why, Mrs. Hastings! I've been calling for Mrs. Jones, and central says hers is one of the telephones yesterday's fire put out of commission. Can you tell me when I can get her?"

"As soon as the men get the cable repaired, I suppose," answered Mrs. Hastings. "Probably by tomorrow," she added.

"Oh, dear! And I want her to fill in at my auction bridge this afternoon. Could you send your little boy down to invite her for me?"

For one second Mrs. Hastings hesitated, then she said politely: "Yes, I'll send him for you."

"Oh, thank you so much. I felt sure you'd help me out of my predicament, seeing that it was your husband's telephone service that had gotten me into it. Lovely morning, isn't it? Good bye."

Five minutes later a rebellious little boy dashed down the street, bent on delivering the message in as few words as possible, and knowing full well that in the meantime he would lose his "go" at the bat in the baseball game now going on in his back yard.

It was not until noon that Mrs. Hastings learned the success of her husband's "trouble" trip.

"You fixed that telephone this morning, I suppose?" she asked him.

"Yes," he replied, volunteering no further information.

"What was the trouble?" his reluctance to talk, piquing her curiosity.

"A door key lying on top of the telephone had short-circuited it."

"Strange place to keep a key."

"I know it, but it seems the baby has a particular fondness for that special key, and the telephone was the highest hiding place in the room."

"Didn't they feel terribly embarrassed at having caused you that long trip, by their carelessness?"

"Not that I could discover," he replied grimly. "The woman was especially indignant at my spoiling their nice hiding place. She was—er—quite eloquent on the subject."

"Where will they keep it now? In the baby's mouth?"

"No, they'll hang it on a nail."

"Why didn't they keep it there before?" Mrs. Hastings now felt quite like a cross-examining lawyer, but a dawning suspicion made her wish to know the whole of this case.

"Why, you see," explained her husband, "the nail wasn't there before, that is—— My dear, this meat pie is delicious."

He was undoubtedly a guilty looking man. Her suspicions were justified.

"John Hastings," she accused. "You drove that nail yourself for those lazy people instead of reading them a lecture on the misuse of the telephone."

John's guilty face acknowledged the accusation as just, al-

A Rebellious Little Boy Dashed Down the Street.

though he was spared oral acknowledgement of his misdeeds by his little son who broke in with: "There's a woman in this town that's some mad at old Jack." Old Jack was the troubleman.

"What has Jack been doing, son?"

"Why, me an' Jack went to take out her telephone. Jack

said they hadn't paid for a long time and every time he had gone to get her telephone, she had been away. But this time she was talking to another woman in her backyard, an' Jack caught her, an' jiminy! but she was mad as hot fire." He chuckled reminiscently.

"But the funniest thing she said, was that she hated to have

"For Two Cents I'd Tear This Telephone Loose."

such a rude, dirty man in her house to take out the telephone. She wished they'd send a good-looking gentleman like the one that put it in. I had to hold my hand over my mouth to keep from laughing out loud."

"I don't see anything so extremely funny in a rude woman hurting old Jack's feelings," his mother said very gravely.

"Pooh, mother, it didn't hurt Jack's feelings. You see, it was Jack who had put the telephone in, in the first place. He just looked different to her, when she used her mad eyes."

It was late afternoon and Mrs. Hastings was returning from a little shopping expedition, when she heard the last of her telephone troubles for the day.

"Mrs. Hastings," she heard some one call, and on looking around perceived a breathless old lady attempting to catch up with her.

"Just a moment," panted the white-haired, pink cheeked old lady. "I wanted to see you before those central girls prejudiced Mr. Hastings against Pa. Pa and they had quite a rucus this afternoon. It was this way: Pa was over to see our niece, who lives in one of our houses, and he thought he'd do some telephoning while he was there—you know we never felt we really needed a telephone ourselves, as our niece's was so handy for us to use. And as I was saying, Pa called 'Central' and tried to tell her he wanted Bill Joseph's feed barn. But he had his new false teeth in and they don't fit noways good, and my niece says he certainly did make funny, chompin' noises with his mouth. Anyhow, I'd a thought 'Central' could a understood him as it's their business to have good ears. But it seems she didn't, and she kept saying, 'Number, please,' and then she'd say something real sharp that Pa couldn't understand, him being pretty hard o' hearing. Finally he called my niece to see if she could hear, and she said 'Central' said, 'Mrs. Baker, you will have to keep that child away from the telephone. He keeps chewing gum so hard we can't hear a word he says.' Think of it Mrs. Hastings! She accused Pa of chewing gum! Did you ever hear of the like?"

"I never did," gasped Mrs. Hastings, fighting hard against the desire to shriek as she pictured Pa—stern-faced, rigid-necked, false-toothed, old Pa chewing gum.

"There! I knew you'd see our side of it, once you heard the straight of it. You see, Pa got awful mad then—a kind of righteous anger, you know. And he shouted into the telephone as well as he was able for the joggling of his teeth: 'For two cents, I'd tear this telephone loose and set it out of doors.' They was awful quiet up at central after that, and Pa came home, but I thought I'd better warn you, so Mr. Hastings can make those girls be more respectful like or else Pa will take that telephone out some day, just as he said."

"Does he pay for the telephone for your niece?"

"Lawsy, no! We hain't got no money interest in the telephone, but Pa can't abide wickedness in high or low places, neither one, so if he found them girls wasn't doing right, he'd just as soon make good his threat as not. You'll not forget to tell your husband?"

"Indeed, I won't," heartily responded Mrs. Hastings. "And be sure to tell me of any further trouble Mr. Cullom may have with the girls. I love to hear them—that is, I mean I'll be glad to report them for you."

The Use of Telephones in Coal Mines.

To protect the thousands of miners working in the coal mines the last Oklahoma legislature passed a law requiring all such mines to install telephones. They are to located every 1,000 feet in the mines and connected to the surface. By this arrangement there will never be a man over 500 feet from a telephone, which, in case of an accident or explosion, will make it possible to get in communication with the surface almost instantly.

Several states have passed such laws, two of the most recent of which are Kansas and Illinois, both of which have been able to effect the saving of many lives by their use. In Kansas the mine owners require the shot firers, or men who go into the mines after all the miners are out to light the fuses and fire the shots, to report to the surface from every telephone they pass, thus making it possible to keep in touch with their whereabouts at all times.

As evidence of the value of their equipment, two shot firers were rescued from a mine located near Girard, Kan., just a few weeks ago. They failed to report to the surface at the proper time, whereupon a rescuing party immediately went into the mine and, reaching the part from where they last reported, found both men overcome by gas. They were taken to the surface, given medical attention and revived within a short time.

Such apparatus in mines can be used in many other ways to advantage. For example, a general alarm or danger signal can be sounded that will give notice to vacate the mines at once; or in case of a cave-in, the entombed men can communicate with the surface, advising their location. Furthermore, they can be used in an economical manner in the operation of the mines and many other ways that would not only be beneficial to the miners, but to the mine owners as well.

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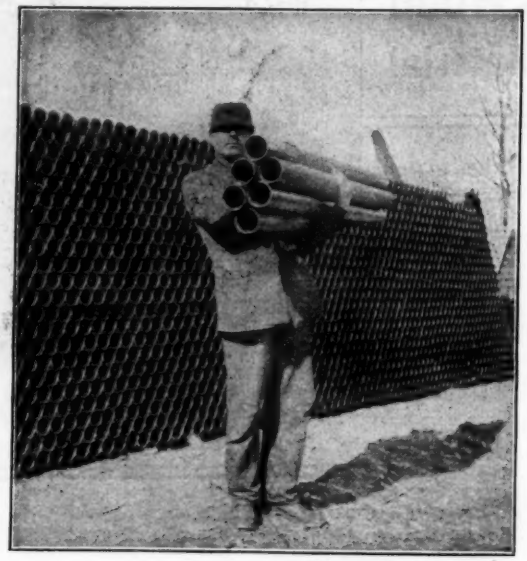

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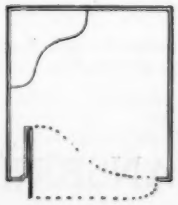

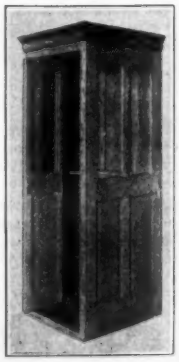

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Queries on Theory and Practice

Leakage in Operator's Listening Keys.

I have a magneto switchboard equipped with all grounded circuits. At times, connecting two lines, connects the whole board, i. e., by connecting on any circuit, one can hear parties as plain as if connection were made direct to the circuits in use. The ground consists of four strands of No. 9 galvanized soft iron wire twisted into a cable and it is 35 feet in the ground in about 20 feet of water. I have one grounded toll line which is grounded with No. 6 copper wire about 22½ feet in the ground and in about 10 feet of water.

I have been unable to locate my trouble. I had about 50 feet of cable from the outside terminal to inside. It had some crosses and shorts in it so was taken out and No. 16 weatherproof copper wire put in its place. At times with the operator's circuit cut off entirely, conversations on any circuit can be overheard.

Your trouble has the symptoms of leakage in the operator's listening keys. Make a test as follows:

At a time when you can overhear conversation on any circuit, with the operator's keys all at normal, disconnect the operator's set wires from the point where they first are connected to the listening keys. If this stops the hearing of conversation, you can be sure that some of the springs, perhaps many of them, are crossed up so that even with the keys at normal, the operator's set is connected to the cord circuits. If this occurs on more than one key, you can readily see that it will cross up all the lines concerned.

Sometimes it is necessary to completely rewire part of the switchboard in order to clear a trouble of this kind. A person may keep on patching and patching without getting anywhere, especially if the trouble is intermittent. Complete rewiring, using the best quality of insulation and careful work, will remove any trouble from this source.

It may be that you have a high resistance at the central office ground, but it does not seem so from your description. Copper wire is, of course, much better than iron, and if the above change does not clear up your trouble, it will be well to substitute No. 6 copper for your iron wire ground.

Questions Relating to Storage Batteries and Testing.

Is it good practice to always keep a set of 12 cells fully charged? Can cells be partly charged and left for several hours, say 10, and the charge be completed on the following day without damaging the plates? Is there any rule to show when the cells need diluted acid?

If a common battery board is taking 130 amperes at 24 volts, what would be the proper adjustment for the machines when floating, as regards volts and amperes? Why is it that charging cells in parallel is considered an unsatisfactory method of charging? What data should be required, to know if the cells are in healthy condition?

A 430-pair cable, with 20-lb. conductors, ¾ mile long, shows a deflection of two scale divisions (40-volt scale, coil 100,000 ohms resistance.) Would this not be a low insulation for this distance?

It is good practice to keep a storage battery of the lead type fully charged. Battery which is continuously floated will have long life.

Cells can be partly charged and left for several hours, before completing the charge, provided the initial charge is sufficient. Before stopping, the battery should be given approximately a half charge. Storage batteries very rarely requires the addition of acid, because evaporation carries away more water than acid. If, however, you are unable to raise the specific gravity to about 1.210 on overcharge, and the battery seems to have nearly its full capacity, you might assume that a little acid is needed to bring it up. However, it is possible that inability to raise the specific gravity may be due to insufficient charging, or to the plates being worn out so that there is little active material left. This will be evidenced by lack of storage capacity.

If the switchboard is consuming 130 amperes at 24 volts, and it is desired to float the battery, the generator should be delivering 130 amperes, all of which will go into the switchboard. The voltage will depend upon the resistance in the circuit, and should not be more than two or three volts above 24 volts.

If cells are charged in parallel, it is difficult to insure the equal distribution of current to the different cells. If, however, a rheostat and an ammeter are placed in series with each of the parallel circuits, the amount of current which each cell gets can be regulated.

The signs of a healthy battery are as follows:

Positive plates; a beautiful, silky brown.

Negative plates; soft looking slate color.

Specific gravity; when fully charged, about 1.210, or perhaps slightly above.

In addition to this a person must take into account the behavior of the battery during charge and discharge. All the cells should behave very much alike. If one begins gassing very much before the others, or much later than the others, or gasses much more or less than the others, trouble may be looked for.

From the data given, it is impossible to calculate the leakage as the voltage of the testing battery has been omitted. Assuming it to be 24 volts, the cable has an insulation of 1.1 megohms. Since this is only ¾ of a mile, it gives an insulation resistance of only 825,000 ohms per mile. This is low. It should be 100 megohms per mile, or more, if the cable is in good condition, and assuming it to be dry core paper.

Stopping the Leaks.

Few foremen or wire chiefs realize how much their plant would be benefited and service improved by reducing wire leads along already existing cable leads, says the "Outside Man" in a recent issue of The Bulletin of the Federal Telephone & Telegraph Co. How many plants there are that run two and three arms full of wires one or two sections through heavy trees in order to reach the cable box? If a cable can top, or two, were cut in, they would reduce possible number of cases of trouble, overcome a great deal of induction and improve the subscribers' service 100 per cent.

It is always in rainy weather that these circuits are in trouble because of leakage from trees and it is at this time that the subscriber wishes to use his telephone for he cannot go out on account of bad weather. An example of reducing cross arm and wire maintenance has been worked out very successfully at the Sayre exchange with very little additional expense. In the last two months there have been 162 cross arms removed, and 400 glass insulators and the hardware for the cross arms returned to the stock.

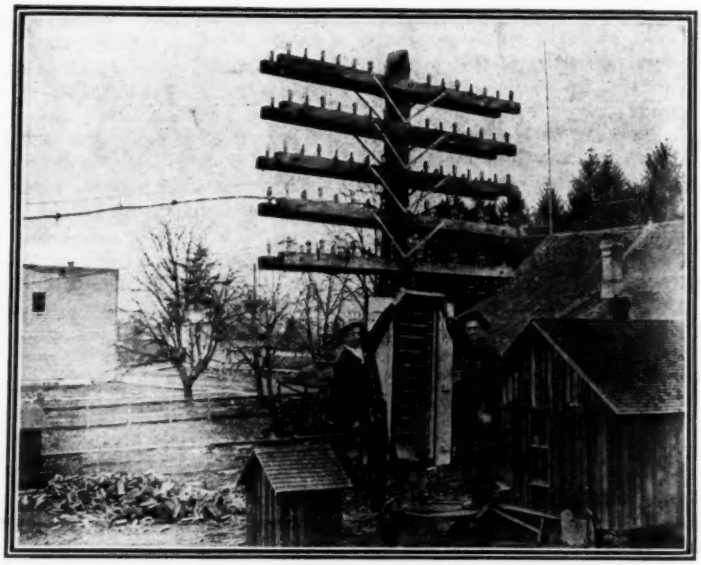
In place of maintaining cross arms on cable poles, two-point Peirce brackets are lagged to the pole as near the cable box as possible to get clearance for the drop. A three-inch lag screw is used in the top hole of the bracket and a two-inch one in the bottom. Three brackets can be placed around a pole in a circle or half circle, according to number of drops taken off the pole. In case the distribution exceeds 15 drops a circle top is used. It is surprising how little trouble this style of construction will give and how much trouble it overcomes.

Out of the Mail Bag

Ocean breezes are most welcome these hot summer days. The nearest many of us have been to the sea was to look at a picture showing the big waves rolling in toward the beach, a sail against the distant horizon and a flock of gulls in the blue sky. We received a letter the other day, however, which was almost as good as a whiff of salt air. Perhaps the fact that it came from far-off Australia made it seem more refreshing. The letter is from C. R. Stearn of Melbourne, Victoria.

"As a constant reader of TELEPHONY for the past six years may I be allowed to mention my appreciation of the magazine in conjunction with my fellow workers from overseas? The information contained therein is invaluable and it is with eagerness we look forward to every American mail that brings TELEPHONY. The articles and suggestions are very instructive and many times I have looked through my back numbers (which I have had bound) and obtained information which could not be gathered from books at ten times the price. In brief, the journal is a gold mine of information for telephone men and is well worth double the price. It should find its way into every telephone man's house, be he a ground man or an engineer.

Mr. Stearn then closes his letter with a query about storage batteries and testing which will be answered in the columns of TELEPHONY. His statement that TELEPHONY prints much telephone matter that cannot be found in textbooks shows why this publication possesses a peculiar value to men who desire to keep abreast of the times, and gives encouragement to the editors who are trying to accomplish that very purpose.



Connecting the New Cable Box.

Philip Hamlin, vice-president of the Mountain States Telephone & Telegraph Co. in a recent letter, refers to an article in TELEPHONY on "Telephone Service and the Movies," and adds: "The point you make in that article is a very pertinent one, and one well worthy the consideration of all telephone officers who are anxious to create a co-operation between themselves and their subscribers. You state that you have never seen a moving picture of the telephone business, and it may be of interest to you to know that the Mountain States Telephone & Telegraph Co. some time ago had a series of moving pictures made of our Denver plant, and these pictures are now being successfully reproduced in all the prominent moving picture shows in our territory. It is not our present plan to have these reproduced in the East, or outside of our own territory, but we were alive to the fact that such a production would be of inestimable value to us. The views as being reproduced were taken in our operating rooms, of an emergency crew of linemen at work, of the operators' school, a fire drill, the auditor's office, of the printing plant engaged in turning out 43,000 telephone directories, a view of the 700 Denver employes leaving the building for lunch and numerous other graphic telephone scenes. Two reels of film were made, and wherever they have been exhibited, have created a great deal of interest. It is to be greatly hoped that the thought expressed by your excellent magazine will bear much fruit, and that telephone companies will take advantage of the suggestion."

TELEPHONY has writen Mr. Hamlin stating that it would be glad to have copies of the pictures to show its readers how the "movies" can be utilized to advance the telephone business.

The accompanying illustration shows W. G. Cummings and his helper installing a new cable pole at Dayton, Ore. Mr. Cummings (at the right in the picture) is now located at Newport, Ore., and is a valued subscriber of TELEPHONY.

In a letter enclosing his check for his subscription, George E. Simmons, general manager of the Avon (Ill.) Mutual Telephone Co., says: "The serial 'The Telephone Inspector and the Troubleman,' recently completed, was one of the most comprehensive series of articles on this subject of maintaining a magneto system that I have ever seen."

C. E. Landis, of Palo Alto, Calif., has the right spirit. In a recent letter he says: "When a person has a good thing, there is lots of satisfaction in being able to pass it along to one's friends and acquaintances. TELEPHONY is a good thing and I have convinced three more of my fellow workers by showing them my copies, emphasizing the simple and practical way that subjects are presented. Enclosed is my check to pay for same."

Bruce B. Bradford until last May was the sole owner and manager of the Green Ridge Telephone Co., at Green Ridge, Mo., and a constant reader of TELEPHONY, which, he said, supplied him with much valuable information about his business. May 1, Mr. Bradford sold his telephone exchange and moved to Farrington, Ia., where he now resides. "Although I am out of the telephone business for the present, I find I cannot get along without your valuable paper," he writes in a letter enclosing check for subscription.

A recent advertiser in TELEPHONY's classified section writes; "Recently we ran an advertisement in your publication one week and received thirty-five replies, the same being from every section of the United States. We began to receive letters before our copy of TELEPHONY reached us."

C. E. Auten, a Chicago subscriber, sends in his check and adds: "I feel that I can't do without TELEPHONY."

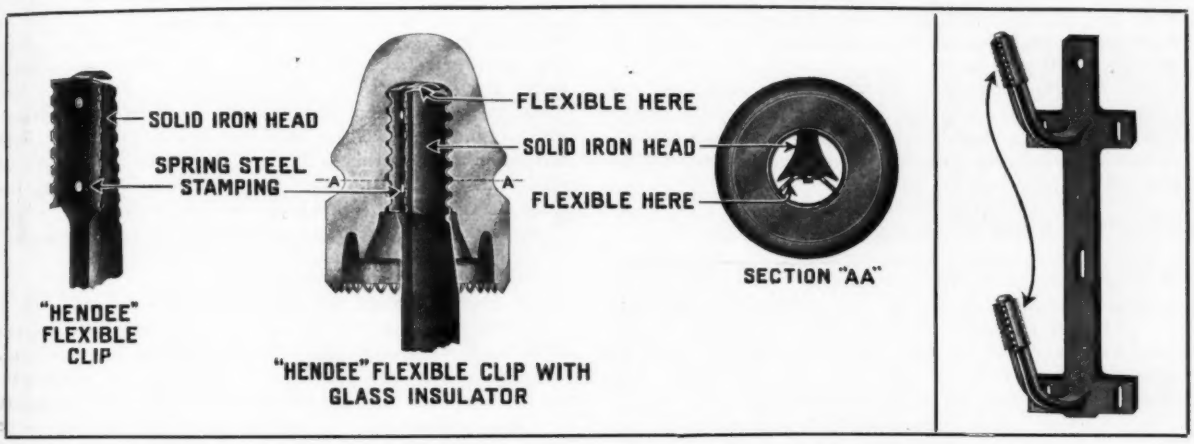
From Factory and Salesroom

The Kyle Line Malleable Iron Brackets.

An interesting variety of malleable iron brackets for use on telephone cross arms, for rolling transpositions, and for use about buildings is shown in a recent catalog issued by the Line Material Co., of South Milwaukee, Wis. Many different types of brackets are made by this company, including screw and drive brackets; grey and malleable iron brackets for use at the corners and on the sides of buildings; and other types which are embraced in what is known as the Kyle line of malleable iron brackets.

These can all be furnished with or without insulator tips, or provided with the new patented "Hendee" flexible clip, which provides against damage to the insulator through expansion and contraction, and conforms to any irregularities of the insulator grooves. It is claimed that this clip holds the insulator firmly at all seasons of the year, expanding and contracting horizontally with the glass insulator. A full section of the "Hendee" malleable bracket enters the glass insulator, a part of this section being used as a thread for the insulator.

This company also makes and carries in stock a general line of hardware used in pole line construction, including galvanized malleable iron guy clamps, cross arm braces, lag screws, bolts and other accessories.



Hendee Flexible Clip and Its Installation With Glass Insulator—A Kyle Line Malleable Iron Bracket.

Accumulated Data—Giving it Business Value.

One day the resident of a large steel company suddenly called upon his accounting department for an analysis of the sales of the preceding five years. The next morning he had the complete analysis for the three years immediately preceding. But, as it would have taken a whole month with a considerable increase in the accounting force, to give him the other two years, he accepted the report for three years then, instead of for five years a month later.

The system which had made possible the preparation of such prompt reports was one involving the use of punched cards in conjunction with automatic sorting and tabulating machines. This had been in use for three years, which accounts for the fact that reports were available over that period. Prior to that the reports were all in loose leaf form and the work of compiling the special report would have involved going to original sources and working over every piece of information from start to finish.

In a large manufacturing plant, where the directors formerly met on the second Friday in each month, full reports covered the operation of the second preceding month; for instance, the report made at the meeting of May 12 covered the month of March. After the tabulating equipment was in smooth operation, the directors' meeting was shifted to the third Friday of each month; the report actually made May 16, 1913, covered the month of April. It is evident that in this plant, three weeks were gained by the system and that this gain is continuous.

The usefulness of the punched card system has been found almost without limit. By using a properly arranged code system for each individual business, the several columns may be made to represent anything, and to analyze anything from prevailing styles in shoes, to the amount of sales in Oshkosh last year; the tonnage of a certain furnace over any desired period; the cost of building a machine tool of a certain type and size; or to locate the date on which a certain man at some period long past was working on a certain machine—this for the handling of an accident suit or any other purpose for which it might conceivably be used.

The system is used in factories for compiling labor costs and efficiency records; for analyzing distribution of sales and internal requisitions for supplies and materials; for production statistics and numerous other items. It is used by public service corporations in analyzing plant expenditures and sales of their service. It is used by insurance companies for analyzing all classes of risks, being particularly valuable in studying special conditions. It is used in wholesale merchandise establishments in analyzing sales and cost figures; by textile mills in analysis of labor and of stock deliveries and sales; by railroads for a great variety and complexity of work; by municipalities and state governments in analyzing expenses of administration.

As a single instance, the auditor of the board of education in New York prepared his 1913 budget, covering an expenditure amounting to forty million dollars, from these Hollerith tabulating cards which had been punched as a record of previous disbursements. The analysis, as usual, was made through the aid of the sorting and tabulating machines.

A New Lockout Device.

A new lockout device for telephones has been invented by E. Bowman, Elmwood, Ont., which, it is claimed, is efficient, simple and economical. This device, it is declared, requires no additional battery power, but is manipulated by a single battery. Canadian patents have been secured and application has been made for United States patents. The invention is owned by C. R. Miller, 1 Otto street, Berlin, Ont., Canada.

who also controls two other devices of the same inventor, for which United States patents have been secured. These include an Indicator, or detective device which identifies the telephone of a third party who may try to "listen in" on the line during the conversation between two subscribers, and a Magneto bell ringer.

Maxum Antiseptic Glass Mouthpiece.

The Frank R. Weeks Mfg. Co., 93 John street, New York City, has purchased all rights pertaining to the Maxum Antiseptic Glass Mouthpiece, and hereafter will direct its distribution. This mouthpiece is made of clear, tough, vitrified glass with a medicated air filter and a nickeled brass clamp which exactly fits and screws into the transmitter of any telephone. It has been approved by and is on exhibition at the American Museum of Safety, New York City. Circular matter regarding this device will be mailed by the company on request.

Paragraphs.

THE AUTOMATIC ELECTRIC CO., of Chicago, manufacturer of the Automatic Telephone, has just issued an engineering bulletin on "The Prevention of Electrolytic Corrosion of Lead Covered Telephone Cables." This pamphlet was prepared by Bernard C. Groh of the company's engineering staff and is illustrated with diagrams and drawings. It deals with a subject which is becoming increasingly important to all who have charge of telephone construction work. The appearance of this bulletin marks one more step in the service campaign which Automatic Electric Co. has inaugurated and which the company believes will prove of value not only to those operating its automatic apparatus, but to the telephone world in general.

A New Form of Pleasure Vehicle.

The accompanying illustration shows the latest design of cyclecar or "poor man's motor car." The cyclecar has its place midway between the motor cycle and the motor car and it is generally predicted that thousands of these cars will be seen on American roads in the next few months. The cost of the cyclecar is low, and that with its practicability accounts for its popularity abroad.

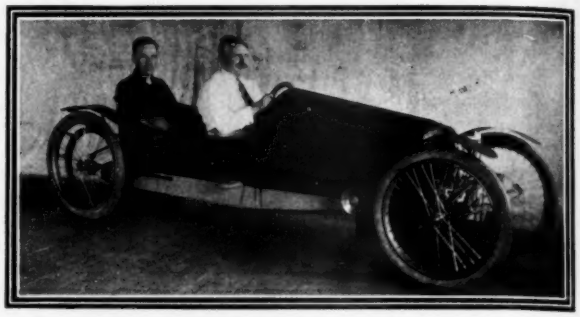
The cyclecar movement started in France two years ago. Today there are 107 makes of cyclecars produced in England alone. France has some twenty factories. Germany is taking up the movement strongly, and in the United States 15 cyclecar companies are already announced and some 20 more, about ready to announce a product. As yet the machines are not on the road, but the movement is well under way.

The car here shown is known as the Imp cyclecar and is the product of the factory of W. H. McIntyre Co., Auburn, Ind. Its principle features are its light weight, simple construction, high speed, low cost and economical operation. It is claimed that these cars can be operated at a speed of 40 to 50 miles an hour and that they can be driven with comfort at high speed over country roads.

Light weight is said to be the thing of fundamental importance in a cyclecar, since weight on the wheels is the basic obstacle to vehicular transit. Reduction is weight is naturally accompanied by extreme simplicity of design and high speed is made possible by the fact that in a simple machine in which all superfluous elements of plant and equipment have been sacrificed a higher ratio of weight to power is obtained than is possible in a product overburdened with features. Reduction in weight and simplicity in construction result in economical car operation. It is claimed that the Imp car can be run 50 miles on one gallon of gasoline.

There are two definite and divergent motives back of the cyclecar in this country; the first, that of building a novel type of high speed pleasure vehicle to sell at a very low price; and the second that of achieving a delivery unit of sufficient capacity for the small tradesman's average needs, and at the same time low enough in cost to be readily within his means.

The fact that the cyclecar does not need to be garaged, it is declared, is destined to be its leading attraction to the suburbanite who, it is expected, will be largely benefited by the new type of car. Many suburbanites have homes surrounded by insufficient land for the erection of a garage such as the ordinary car requires, while other things being equal, the installation of an ordinary garage is out of the question because there is no room for a driveway of standard width. The cyclecar with its narrow tread and light weight eliminates this difficulty. Without any trouble at all it can be eased up over the curb and rolled along the walk at the side of the house to the back yard, where it can be housed in a special low-cost structure that will take very little space.



Cyclecar—The Latest in Pleasure Vehicles.

Bell Promises to Improve Detroit Service.

Several conferences have recently been held between the officers of the Detroit Board of Commerce and the management of the Michigan State Telephone Co. relative to improvement in the telephone service. After the conclusion of these conferences, A. von Schlegell, the general manager, assured President Couzens that every effort was being made by the company to better the service and that he would personally guarantee that by Oct. 1 the service would be so much improved that the subscribers and people of Detroit would be satisfied.

Richard Lawson, corporation counsel of Detroit, recently rendered an opinion to the effect that the city has no legal authority to regulate telephone service and rates. Steps have been taken for an investigation of the Detroit situation by the Michigan Railroad Commission and T. J. McCormick, investigator for the commission was assigned to gather detailed information regarding complaints of service preliminary to a hearing to be conducted by Lawton T. Hemens of the commission.

Demand Improved Service at Elwood City, Pa.

A very energetic battle has been taken up by the business interests of Elwood City, Pa., demanding better service from the Bell telephone exchange there. The allegation is made that the central girls have been incompetent and underpaid and that the system is about worn out.

The Independents are in competition with the Bell at Ellwood City, but the business for both companies is about ruined by "free service" to New Castle, the county seat. The people have given the Bell 60 days to improve the service and if at the end of that time the service is not bettered, the telephones will probably be ordered out.

Record of Telephone Patents Recently Issued

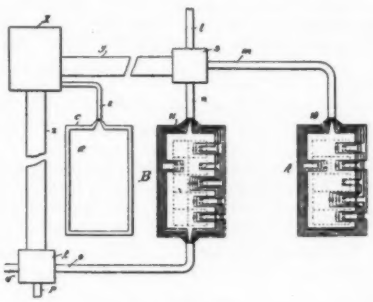
1,067,274. July 15, 1913. TELEPHONE REGISTER AND LOCKOUT DEVICE; Chas. V. Richey, Washington, D. C.; assigned to Phone Call Recorder Co. Describes a lockout and register substation equipment combined with a mechanical and electrical switching device adapted to change from a lockout to a register system. The device is intended for use on party lines.

1,067,354. July 15, 1913. TRAIN TELEPHONE CONNECTION POLE; Wm. Leach, Moose Jaw, Saskatchewan, Can. Connection is made to the line wires by means of two connecting members which fit a pair of sockets mounted upon the pole. Controlling cords extend from the line connecting members through the sockets and down the pole.

1,067,527. July 15, 1913. SIGNALING SYSTEM; Chas A. Larson, Highland Park, Ill.; assigned to Kellogg Switchboard & Supply Co. The principal feature of this invention is a master key having a plurality of actuating members and contacts which are connected with the contacts of the pole changer which acts as a source of ringing current. Upon the actuating of the master key, ringing current may be sent out over signaling conductors.

1,067,561. July 15, 1913. TELEPHONE RECEIVER CASING; Levi Swanson. New York. A rigid tubular shell of resistant material, provided with perforations arranged in rows and so spaced that the shell's rigidity is unaffected. This shell is covered with an insulating material thus to form the receiver casing.

1,067,606. July 15, 1913. TELEPHONE SYSTEM; M. E. Gronvigh, Bergen, Norway; assigned one-half to Thomas S. Pukerud, Wilkinsburg, Pa. Describes a distribution system for a number of buildings near together. A zone cable is laid adjacent to the group of buildings constituting the zone and cer-



No. 1,067,606.

tain wires terminate in certain of the buildings. Some of the zone cable wires are found in more than one building of the zone and may be used in any one of the buildings as desired.

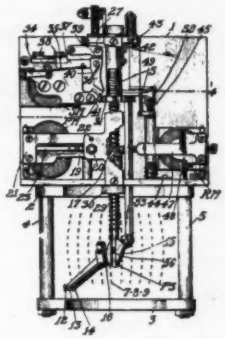
1,067,715. July 15, 1913. TELEPHONY; Sidney G. Brown, London. Relates to a telephone relay system in which a high self-induction coil is placed midway or about midway in one of the wires and one of the terminals of the local circuit winding of the relay is connected to an intermediate point of the coil, while the other terminal of the local circuit winding is attached to a corresponding point to the other wire. The energizing winding of the relay is connected to the ends of the coil.

1,067,718. July 15, 1913. TELEPHONE TRANSMITTER; Jairus Collins, Quaker City, Ohio; assigned one-half to W. K. Collins, Cripple Creek, Colo. An insulation plate and front electrode are supported centrally upon a diaphragm. A casing, including a back electrode, is hung loosely from the insulation plate while the resistance varying medium is located within the casing between the electrodes.

1,068,521. July 29, 1913. AUTOMATIC SWITCH FOR TELEPHONE SYSTEMS; Geo. E. Mueller, LaGrange, Ill.; assigned to Kellogg Switchboard & Supply Co. An automatic switch is described which comprises a rotatable shaft carrying a movable wiper. Means are provided for rotating the shaft to move the wiper in a primary direction to select a group of contacts and then to move it in a secondary direction so as to select the contact in the group.

1,068,627. July 29, 1913. LOCKING DEVICE FOR TELEPHONE RECEIVERS; Wm. W. Bythiner, Philadelphia, Pa.; assigned one-half to E. D. Bernheim. Describes a bearing plate and clamping member which is adapted to automatically enlarge so as to engage the large end of the receiver.

1,068,871. July 29, 1913. COOLING DEVICE FOR TELEPHONE TRANSMITTERS FOR STRONG CURRENT; Carl E. Egner, Stockholm, Sweden, and Johan G. Holmstrom, Saltsjo-Storangen, Sweden. Describes a tube attached to the heat generating



No. 1,068,521.

electrode of the transmitter, by means of which a cooling medium, such as paraffin, is projected upon the heated electrode.

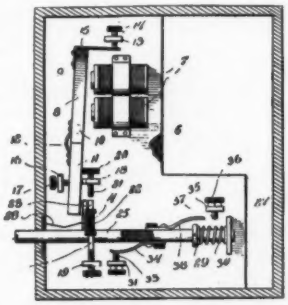
1,068,949. July 29, 1913. TELEPHONE DISINFECTANT ATTACHMENT; Joseph Tichy, Chicago. Relates to an attachment by means of which disinfectant paper is stretched across the mouthpiece between two rolls.

1,068,972. July 29, 1913. REGISTER FOR TELEPHONE CALLS; Henry S. Brewington, Baltimore, Md. The register is attached to the subscriber's instrument and the registering circuit is connected in parallel with the ringing circuit. Means are provided at the exchange for controlling the registering circuit when the subscriber's talking circuit is closed.

1,069,307. August 5, 1913. TELEPHONE RECEIVER HOLDER; Andrew Wetzel, Los Angeles, Cal. Describes a wall bracket for holding the telephone to the ear when using the wall telephone set.

1,069,347. August 5, 1913. SELECTIVE SIGNALING SYSTEM; Alexander C. Reid, Genoa, Ill.; assigned to Hall Switch & Signal Co. A step by step selector and a signal is located at each substation with a sluggishly moving circuit-closing element interposed between the signal. The selector is operated by a relay.

1,069,458. August 5, 1913. TELEPHONE LOCKING SYSTEM; Walter A. Morse, North Grosvenor Dale, Conn. Relates to an electromagnetically controlled lock placed on the receiver hook of party line telephone sets so that the subscriber, on



No. 1,068,458.

calling central, automatically locks out all other telephones on the line.

1,069,811. August 12, 1913. TELEPHONE APPARATUS FOR TRAINS; Percy Robinson, Sudbury, Ont., Can. Relates to a pole and reel arrangement for connecting a train telephone with telephone wires adjacent to the track.

1,069,899. August 12, 1913. MICROPHONE; Guillaume A. Nussbaum, London, Eng. A hermetically sealed hollow pneu-

matic ring of India rubber is placed between the diaphragm and rear electrode so as to permit movement of the carbon granules at right angles to the plane of the sound waves.

1,070,104. August 12, 1913. TELEPHONE SYSTEM; Gotthiuf A. Betulander, Saltsjo-Nack, Sweden. Relates to safety devices for preventing loss of current by leakage through the combination of a source of current and a line normally separated from the current source. A relay effects a connection of the line with the source of current, while a time switch controlls the relay so as to disconnect the current from the line after a certain period.

1,070,291. August 12, 1913. DEVICE FOR LOCKING DESK TELEPHONES; Clark D. Rhinehart, Jr., and Lubomir P. Saponoff, New York, N. Y.; assigned to Thomas McGonigal. Describes a cylindrical hinged clasp having rectangular projections with an adjusting screw and flange carried by one limb of the clasp. A projecting head-piece, adapted to conceal the screw when the clasp is closed, is carried by the other limb.

Condensed News Reports

Officers of Companies are Earnestly Requested to Forward Us Promptly All Financial and Other Statements as Soon as Issued, and Any Items of Interest as to Their Plants and Systems

Personal.

GEORGE YEAGER has been appointed local manager of the New Ottawa Telephone Co., at Prairie Depot, Ohio.

H. G. CONGER, for the past three years local manager for the Iowa Telephone Co., at Des Moines, Iowa, has been appointed division commercial superintendent, succeeding E. A. Clark, who has been transferred to Omaha.

H. A. BALL, for the past year manager of the Rossville Telephone Co., at Rossville, Ill., has purchased the Arrowsmith Telephone Exchange, at Arrowsmith, Ill. Mr. Ball has moved to Arrowsmith and has taken charge of the plant.

J. J. VEATCH, for several years manager of the East Tennessee Telephone Co., in Bourbon county, Ky., has been appointed district manager for the Central Home Telephone & Telegraph Co. of Louisville, with headquarters at Paris, Ky.

New Companies and Incorporations.

BERRYVILLE, ARK.—The Berryville Telephone Co. has been incorporated with $10,000 capital stock by W. G. Hanbury, R. E. Norris, Tom Morris and others.

MACON, GA.—The Middle Georgia Telephone Co. has been incorporated with $25,000 capital stock. The incorporators are: J. A. Faucett and H. M. Fleetwood, of Macon; J. P. Peacock, of Cochran; M. C. Arnold, of Danville, and H. F. Griffin, Jr., of Jeffersonville. The company has been granted a charter to operate in the counties of Bleckley, Wilkinson, Laurens, Twigg and Bibb.

RAY, ILL.—Articles of incorporation have been filed by the Flatwoods & Ray Telephone Co. with $450 capital stock. The incorporators are: W. F. Aten, S. H. Whipple and Wm. Norton.

SPECK, KY.—The Speck & Knifley Telephone Co. has been incorporated with $1,000 capital stock. The incorporators are: J. V. Robinson, Wm. Warren, Wm. Young and J. W. Wings.

VIPER, KY.—The Mace's Creek Telephone Co. has been incorporated with $1,500 capital stock by G. H. Brashear and William Cornett. Lines to Hazard and Hindman will be erected.

MILLINGTON, MICH.—Articles of incorporation have been filed by the Tuscola Farmers' Telephone Co. with $10,000 capital stock. The incorporators are: C. N. McNeal, M. H. Jensen, J. D. Austin, all of this city, and others.

HEWITT, MINN.—Articles of incorporation have been filed by the Wing River Valley Telephone Co. with $1,000 capital stock. The officers are as follows: President, D. V. Richards; secretary, E. T. Russells, and treasurer, Ernest Troldlick.

REMER, MINN.—The Remer Rural Telephone Co. has been incorporated with $25,000 capital stock. The incorporators are: Fred L. Sanborn, president; Theo. M. Klement, vice-president; W. A. Wicklund, secretary, and Chas. A. Graham.

GLENDIVE, MONT.—The Pioneer Telephone Co. has been incorporated with $40,000 capital stock. The directors are as follows: C. A. Rasmiussen, Andrew Larson and E. C. Leonard, all of Glendive.

WILBAUX, MONT.—Articles of incorporation have been filed by the Blue Mountain Mutual Telephone Co. with $6,000 capital stock. The directors are as follows: E. B. Stair, E. J. Bell, M. D. Cook, Martin Onstad and N. L. Stagg, all of Wilbaux.

LONG LAKE, N. Y.—The Long Lake Telephone Co. has been incorporated with a capital stock of $10,000 to operate a telephone line in this vicinity. The incorporators are as follows: Timothy D. Sullivan, Bridget A. Sullivan and John M. Sullivan, all of Long Lake, N. Y.

THE DALLES, ORE.—Articles of incorporation have been filed by the Mill Creek Telephone Co. with $1,050 capital stock. The incorporators are: J. H. Skelley, H. C. Nielson, F. O. Brace, C. L. Hazen and W. Byers, all of The Dalles.

ALEXANDRIA, S. D.—The Wayne & Rosedale Rural Telephone Co. has been incorporated with $1,000 capital stock. The incorporators are: Jacob Schlitz, J. B. Jarding and Peter Arend, all of this city.

LAVERNIA, TEXAS.—The Mutual Telephone Co. has been incorporated with $2,000 capital stock. The incorporators are Hugo Kott, W. M. Wiseman, and W. E. Warren.

SPOKANE, WASH.—The Davenport Independent Telephone Co. has been incorporated with $35,000 capital stock. The incorporators are: A. T. West, C. E. West, C. N. Thomas, W. H. Armin and L. B. Cornell.

Construction.

HARTFORD, CONN.—The Southern New England Telephone Co. is contemplating the erection of an addition to its exchange building which will cost in the neighborhood of $20,000.

FRANKFORT, ILL.—It is reported that the Inter-State Independent Telephone & Telegraph Co. has plans for making the Frankfort exchange a model exchange. A new switchboard will be installed and numerous other improvements will be made.

SIOUX CITY, IOWA—The entire system of the New State Telephone Co. is to be overhauled and improvements made where necessary. New cable will be stretched in different parts of the city. C. H. Smith is manager of the company.

HINDMAN, KY.—The Hindman Telephone Co. contemplates the construction of lines from this city to Lackey, Ky., via Beaver Creek.

WHITESBURG, KY.—The Whitesburg Telephone Co. has plans under way for the construction of another exchange in this city. About 100 telephones will be installed and about 50 miles of line will be erected. Mr. A. Q. Ramey is manager.

HOUGHTON, MICH.—A considerable amount of underground conduit will be laid by the Michigan State Telephone Co. in this city and Hancock and a submarine cable will be laid across Portage Lake.

FAIRMONT, NEB.—The Lincoln Telephone & Telegraph Co. is planning to install a complete new equipment in this city.

ERIE, PA.—The Union Telephone Co. is planning to rebuild some of its lines between New Castle, Pa., and Youngstown, Ohio, where additional facilities are much needed. The toll lines between Greenville and Erie will also be improved.

LANCASTER, PA.—The Bell Telephone Co. of Pennsylvania is having plans made for the erection of a two-story exchange building in this city.

HAMILTON, TEXAS.—The Gulf States Telephone Co. is seeking to make arrangements for extension of its lines along the route of the Temple, Northwestern & Gulf Railroad Co. to Temple.

NORTON, VA.—The Virginia & Tennessee Telephone Co. will extend its lines to Lipps and to Pound besides making various other improvements and extensions.

SEATTLE, WASH.—The Pacific Telephone & Telegraph Co. has announced its intention of constructing a new exchange building in this city, to cost together with new equipment approximately $100,000.

EDMONTON, ALTA., CAN.—W. J. Harmer, Deputy Minister of Telephones, recently announced that the government will string 2,400 miles of rural telephone lines this season, at a cost of about $2,000,000.

Elections.

HARLAN, IOWA.—At a recent meeting of the Harlan-Avoca Telephone & Telegraph Co. the following officers were elected for the ensuing year: President, John Jenks; vice-president, Chas. W. Davis; secretary and treasurer, M. Fritz.

ALPENA, MICH.—At the annual meeting of the Onaway-Alpena Telephone Co., held recently at Jackson, new directors were chosen as follows: Prof. C. H. Davis, of Adrian; John W. Allen, of Adrian, and Chas. Rothroff, of Jackson. A resolution was adopted to increase the number of directors from three to five, two new members to be elected in September.

OCONTO, WIS.—The directors of the Oconto Rural Telephone Co. held a meeting recently and elected the following officers for the ensuing year: President, Ed Couillard; vice-president, L. E. Whiting; and treasurer, W. M. Comstock.

Financial.

COVINA, CAL.—The Home Telephone Co. has applied to the Railroad Commission for authority to issue $40,000 worth of bonds, the proceeds to be used for erecting an exchange building at Puente and for extending and enlarging its system in the localities in which it operates.

GALVA, ILL.—The Galva Telephone Co. has increased its capital stock from $2,000 to $15,000.

HINDMAN, KY.—The Knott County Telephone Co. has increased its capital stock from $3,000 to $4,000 and will make a number of extensions in Knott county, among which is included the construction of a line to Hazard, a distance of 32 miles.

GRAND RAPIDS, MICH.—The Citizens Telephone Co. has been granted permission to issue bonds amounting to $42,000.

BUFFALO, N. Y.—The Public Service Commission has authorized the Federal Telephone & Telegraph Co. to issue $500,000 worth of bonds at 5 per cent. on its mortgage dated March 24, 1909.

COLUMBUS, OHIO.—The United States Telephone Co. has declared its regularly quarter dividend of 1½ per cent.

RALSTON, PA.—At a meeting of the directors of the Ralston Telephone & Telegraph Co. a 5 per cent. dividend was declared.

Franchise.

MACON, GA.—The Middle Georgia Telephone Co., which was recently incorporated, is seeking a franchise to operate in this city. The officers of the company are as follows: President, J. A. Faucett; vice-president, M. C. Arnold; secretary and treasurer, H. M. Fleetwood.

PEN ARGYL, PA.—The city council has granted a franchise to the Blue Mountain Telephone & Telegraph Co., of Bangor, Pa.

POMEROY, WASH.—A. L. Cabbage, W. A. Pearson, T. A. Bartlett, P. C. Nicholson, Otto Munch and James Buttlet have been granted a franchise by the county commissioners to build a telephone line in this vicinity.

Underground.

CHICAGO, ILL.—Considerable underground construction work is contemplated by the Chicago Telephone Co.

PEORIA, ILL.—The United States War Department has granted to the Inter-State Independent Telephone & Telegraph Co. the right to lay on the bed of the Illinois river a submarine telephone cable from this city to East Peoria. The estimated cost of the entire improvements planned will be about $20,000.

DETROIT, MICH.—Appropriations have been made by the Michigan State Telephone Co. for the laying of considerable underground cable in this city.

DAYTON, OHIO.—The Western Union Telegraph Co. has arranged to install a complete underground system in this city, entailing the expenditure of about $60,000. It has been arranged with the Central Union Telephone Co. for the use of its conduits.

ALLENTOWN, PA.—The Bell Telephone Co., of Pennsylvania, has made appropriation for laying over a thousand feet of cable in this city.

JANESVILLE, WIS.—The Rock County Telephone Co. has filed a petition with the city council for permission to place its wires in underground conduit in the business section of this city.

Miscellaneous.

SOUTH PASADENA, CAL.—The Home Telephone & Telegraph Co. has been granted a certificate of public convenience by the Railroad Commission to maintain a telephone and telegraph system along the public streets of South Pasadena.

ARROWSMITH, ILL.—H. A. Ball has purchased the exchange of the Arrowsmith Telephone Co. of this city.

HEWITT, MINN.—Articles of incorporation have been filed by the Hewitt & Verndale Telephone Co. with $1,000 capital stock. The incorporators are L. J. Gossel, Newton Rowe, Axel Erickson and Wm. Rowe, all of Hewitt.

EMERALD, NEB.—A new company has been organized in this city, of which H. Burkart is president.

LIMA, OHIO.—The Lima Telephone Co. has purchased the plant of the Central Union Telephone Co. in this city and will enlarge and improve the system. The cost of the transfer of the equipment, the laying of the new lines and conduit and the expansion of the exchange building will cost nearly $90,000.

GAINESVILLE, TEXAS.—The Peoples Home Telephone Co., consisting of exchanges at Denton and Valley View and 115 miles of long-distance lines, has been purchased by Sherman capitalists, who own the Grayson County Telephone Co. F. W. Porter is president. It is understood that the plant will now be remodeled with new switchboards and up-to-date appliances.

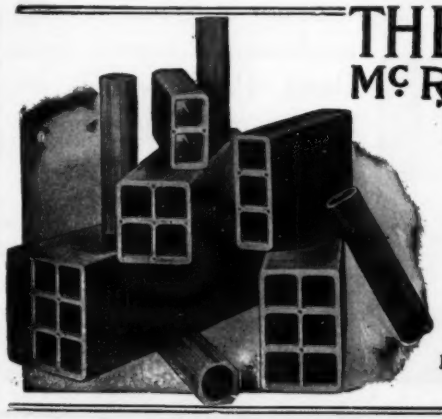
ORANGE, TEXAS.—The Brazos Valley Telephone & Telegraph Co., of Waco, Texas, has purchased controlling interest in the Orange Home Telephone Co.

BAYWOOD, VA.—R. G. Norman has sold the properties of the Baywood Telephone Co. to C. J. Galyen, of the same place. His reason for selling is that he intends moving to Maryland this fall.

MALDEN, WASH.—The Malden Telephone Co., recently purchased by E. E. Siegel, has been taken over by the Rosalia Telephone Co., of Rosalia, Wash., and will be operated as a branch of that company. The council will grant a new franchise to the purchasers and in return Malden will have connections with Rosalia and other nearby towns.

FORESTVILLE, WIS.—The Maplewood Western Telephone Co. has dissolved. Louis Jaschow was president and Chris. Kipping, secretary.

BRANDON, MAN.—The Government Telephone Exchange was completely destroyed by fire. The loss is placed at $100,000.



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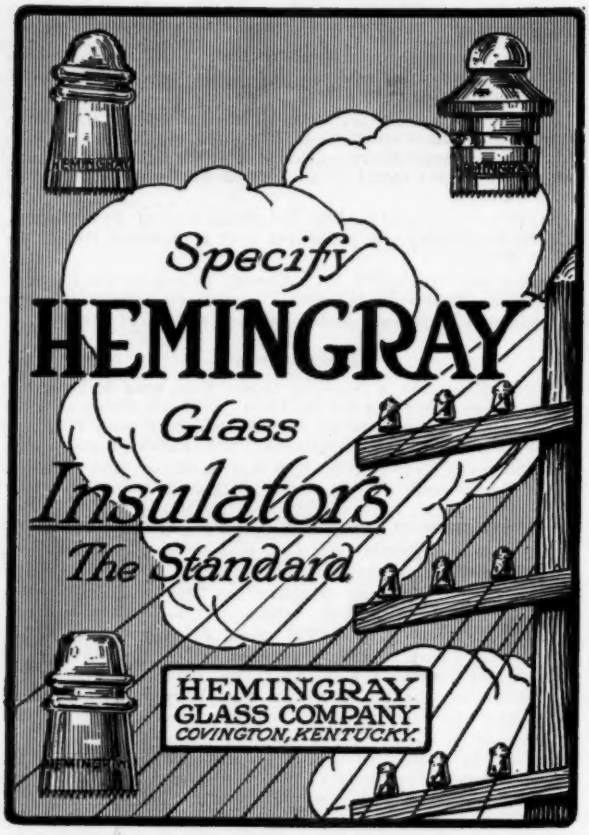

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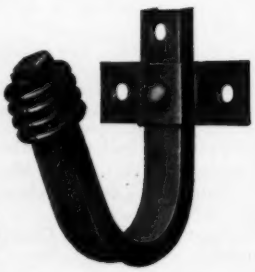

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